



TRANSMITTAL

5295 South Commerce Drive, Ste. 500

Murray, Utah 84107

P: 801.704.0301

F: 801.261.3913

TO: Michael Luciani

CONTRACT NO.: NFG FM100 Project

FROM: Theresa Albanese

PURCHASE ORDER NO: N/A

DATE: 20200203

TASK: Permit Application Approval

SUBJECT: NFG FM100 Project Incompleteness Notification

☒ For Review

☐ Please Comment

☐ For Approval

☐ For Signature

☐ Urgent

☐ As Requested

☐ Approved as Noted

☐ Please Reply

MESSAGE:

Dear Mr. Luciani,

Enclosed you will find one CD containing the following materials pertaining to the National Fuel Gas Supply Corporations' FM100 Project:

- The response to the incompleteness notification dated 12/24/2019 for the JPA Chapter 105 Permit
- The response to the incompleteness notification dated 12/24/2019 for the ESCGP-3 permit.

Please let me know if you have any questions or if there is anything else I can do to assist you.

Regards,

Douglas Gibbons

CC: PROJECT FILE

National Fuel Gas Supply Corporation, FM100
Water Obstruction & Encroachment Permits
DEP App No E1283219-01; E1783219-001; E1883219-002; E2483219-001;
E4283219-001; E5383219-001
Response to Incompleteness Notification dated December 24, 2019

This document outlines National Fuel Gas Supply Corporation's response to the Pennsylvania Department of Environmental Protection Incompleteness Notice letter issued for the FM100 Project on December 24, 2019. Each comment has been reproduced and a corresponding answer provided. Where applicable National Fuel has updated plans and/or drawings and have noted the updates to those documents herein. Revised versions of these documents are being provided in digital format as part of this response.

Comment 1

Please provide copies of the municipal and county return receipts. [25 Pa Code §105.13a(a)]

Response:

The county return receipts were previously provided in Section 03-01-00 "Land Use Notice Letters" of the JPA Chapter 105 permit application to PADEP. For convenience, they are also provided here as Attachment A.

Comment 2

A screening of the Pennsylvania Natural Diversity Inventory (PNDI) has revealed potential conflicts with ecological resources of special concern. Please provide a copy of a letter from the referenced agency, indicating that the conflict is resolved. [25 Pa Code §105.13(e)(1)(x)]

Response:

Correspondence with the Pennsylvania Fish and Boat Commission date 10/8/2019 was provided in section 5-04-02 of the JPA Chapter 105 permit submission. In the 10/8/2019 correspondence, Ken Anderson reviews species of concern identified in the FM100 Project and concurs with mitigation measures proposed by National Fuel Gas Supply Corporation. It was ultimately determined by the Pennsylvania Fish and Boat Commission that the Project was not expected to have an adverse impact on any species of concern, provided NFG followed the outlined mitigation measures. For convenience, the letter is provided here as Attachment B.

Comment 3

Please complete the Pennsylvania State Programmatic General Permit-5 (PASPGP-5) Review Checklist. [25 Pa Code §105.13a]

Response:

The PASPGP-5 Review Checklist is complete and is included as Attachment C.

Comment 4

Please provide a detailed project description. This should include all impacts (stream, wetland, floodway, etc.) associated with the project within each county. [25 Pa Code§105.13(e)(1)(iii)]

Response:

Within the Comprehensive Environmental Assessment provided as part of the JPA Chapter 105 application, a description of all proposed Project facilities was included in Section 1.3 and 1.4. Environmental impacts associated with the Project were outlined in Section 2 of the Environmental Assessment. Impacts to streams were detailed in Table 2.3-1, impacts to wetlands were outlined in Table 2.4-1, and impacts to FEMA 100-year Floodplains were detailed in Table 2.3-4. A revised copy of Table 2.3-1 has been added to this response as Attachment G. Additionally, impacts to streams, wetlands, and floodplains were shown in the ARIT tables included as section 04-01-00 of the JPA Chapter 105 application.

Comment 5

Please provide a registered professional engineer's seal and signed certification, in accordance with §105.13(j) which shall read as follows: "I (name) do hereby certify pursuant to the penalties of 18 Pa. C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection."

Response:

Attachment D contains the work performed by the various engineers with their seal and signed certification.

Comment 6

Please provide copies of the PA Riverine Condition Level 2 Rapid Assessment area mapping and data sheets (E.A. Form Instructions, Module S2 D.1.iii. DEP Document No. 3150-PM-BWEW0017 Rev. 6/2017). [25 Pa Code §105.15(c)]

Response:

PA Riverine Condition Level 2 Rapid Assessment area mapping and data sheets are provided as Attachment E of this submission.

Comment 7

Please provide copies of the PA Wetland Condition Level 2 Rapid Assessment area mapping, data sheets, worksheets, and stressor checklists (E.A. Form Instructions, Module S2 D.2.v. DEP Document No. 3150-PM-BWEW0017 Rev. 6/2017). [25 Pa Code §105.15(c)]

Response:

PA Wetland Condition Level 2 Rapid Assessment area mapping, data sheets, worksheets, and stressor checklists are provided as Attachment F of this submission.

Comment 8

The application fee for the Cameron County application should include the Permanent Disturbance acreage. The application fee should be \$5,750.00. Therefore, the amount of the check you submitted is incorrect. Please submit an additional check in the amount of \$4,000.00, payable to the Commonwealth of Pennsylvania. [25 Pa Code §105.13(c)(2)]

Response:

For the Cameron County JPA, a check in the amount of \$7,850 payable to the Commonwealth of Pennsylvania was provided to the DEP. This fee was for the Chapter 105 Water Obstruction & Encroachment Permit (JPA) Application.

This check was sent by the applicant, National Fuel, directly to the DEP-RPCO office and in advance of the formal permit application submittal.

The Cameron County Chapter 105 Fee Calculation Worksheet was provided with the application submittal and it described the following breakdown:

- An administrative filing fee of \$1,750
- A temporary disturbance fee of \$5,600 (temp dist. is 1.4 acres).
(There is no proposed permanent disturbance in Cameron County)
- An Environmental Assessment fee \$500

For a Total of \$7,850

We did not include a DEP Disturbed Acre fee to each County. NFG paid with one check (fee) in the amount of \$54,700.00, (per the direction of Michael Luciani, DEP-RPCO) payable to:

Commonwealth of PA Clean Water Fund

(Note: DEP Disturbed acre fee for all counties).

As the disturbed acreage fee would normally go with each county as part of the ESC permit but since this is one Project with six counties the DEP asked that we send one check to cover all counties.

Attachment A

Cameron Co.

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Mc Kean Co.

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U.S. Postal Service™ CERTIFIED MAIL® RECEIPT Domestic Mail Only	
For delivery information, visit our website at www.usps.com ®.	
PORT ALLEGANY, PA 16743	
OFFICIAL USE	
Certified Mail Fee \$3.50	0429
\$0.00	11
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy) \$1.50	
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☐ Adult Signature Required \$0.00	
☐ Adult Signature Restricted Delivery \$0.00	
Postage \$1.30	
Total Postage and Fees \$5.40	10/26/2019
Sent To Liberty Township Planning Commission Street and Apt. No., or PO Box No. 4859 Route 155 City, State, ZIP+4® Port Allegany, PA 16743	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

7016 1830 0000 0357 7651

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT Domestic Mail Only	
For delivery information, visit our website at www.usps.com ®.	
SMETHPORT, PA 16749	
OFFICIAL USE	
Certified Mail Fee \$3.50	0429
\$0.00	11
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy) \$1.50	
☐ Return Receipt (electronic) \$0.00	
☐ Certified Mail Restricted Delivery \$0.00	
☐ Adult Signature Required \$0.00	
☐ Adult Signature Restricted Delivery \$0.00	
Postage \$1.30	
Total Postage and Fees \$5.40	10/26/2019
Sent To Norwich Township Planning Commission Street and Apt. No., or PO Box No. 3853 West Valley Road City, State, ZIP+4® Smethport, PA 16749	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

7016 1830 0000 0357 7668

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT Domestic Mail Only	
For delivery information, visit our website at www.usps.com ®.	
MOUNT JEWETT, PA 16740	
OFFICIAL USE	
Certified Mail Fee \$3.50	0429
\$0.00	11
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy) \$1.50	
☐ Return Receipt (electronic) \$0.00	
☐ Certified Mail Restricted Delivery \$0.00	
☐ Adult Signature Required \$0.00	
☐ Adult Signature Restricted Delivery \$0.00	
Postage \$1.30	
Total Postage and Fees \$5.40	10/26/2019
Sent To Sergeant Township Planning Commission Street and Apt. No., or PO Box No. 14225 Wilcox Rd. City, State, ZIP+4® Mt. Jewett, PA 16740	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

Attachment B



Pennsylvania Fish & Boat Commission

Division of Environmental Services

Natural Gas Section
595 E Rolling Ridge Dr.
Bellefonte, PA 16823

October 8, 2019

IN REPLY REFER TO
SIR# 50302

Mott MacDonald
Theresa Albanese
134 Capital Drive
West Springfield,
Massachusetts 01089

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 669111_1
FM100 Project
CAMERON County: - CLEARFIELD County: - CLINTON County: - ELK County: -
MCKEAN County: - POTTER County:

Dear Douglas Gibbons:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search “potential conflict” or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

The state endangered **Burbot (*Lota lota*, Endangered)** is known from the upper Allegheny River watershed at several of the proposed pipeline stream crossing locations. This fish species is especially vulnerable to physical (dredging, substrate modification, etc.) and chemical (turbidity, pH, dissolved oxygen, temperature, heavy metals and organic contaminants) changes to its aquatic environment. Although the mobile adults of this species may be capable of moving from the project area, their spawning grounds (including eggs, fry, and immature fish) are vulnerable to burial, crushing by equipment, and siltation from in-stream construction projects. We are concerned about potential impacts to the fish, eggs and the hatching fry from any in-stream work. Therefore, we request no in-stream activity be conducted from **December 1 to April 1** in the upper Allegheny River watershed to avoid adverse impacts during the spawning season. Likewise, all work should be done during low flow periods, and strict erosion and sedimentation control measures must be employed.

Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.

The **Timber Rattlesnake (*Crotalus horridus*, Species of Special Concern)** has been confirmed to occupy portions of the proposed project. The habitat assessment report prepared by Herpetological Associates, Inc dated September 19, 2019 has concluded that suitable critical habitat for the species exists at two locations, near mile post 4.7 and 25. 2. The report included case specific conservation measures and best management practices for the species, in the recommendations section on pages 11 and 12. We concur with the recommendations. Provided these conservation measures are implemented, I do not foresee the proposed project resulting in adverse impacts to the Timber Rattlesnake.

Rare or protected **Freshwater Mussels** communities are known from three waters crossed by the project, Allegheny River, Allegheny Portage Creek and Potato Creek. The survey report prepared by Normandeau Associates, Inc. dated August 2019, has described the mussel communities, confirming the presence of PA state-listed species of special concern, at three crossing locations. We concur with the proposed crossing of the three waters containing mussel communities via directional boring as an avoidance measure. Erosion or sediment should not be allowed to leave the limit of disturbance or enter waters. The Pennsylvania Fish and Boat Commission (PFBC) recommends that the applicant implement the following contingencies to prevent impacts to water quality from drilling/boring operations:

- Have an environmental inspector on site for the duration of the entire crossing operation.
- Stop the bore/drill immediately if anyone on site observes an Inadvertent Return.
- Have a Vac Truck on site or on call (within three hours) to begin clean-up of the release in the to prevent migration of drilling fluids in to waters.

- Notify PFBC Bureau of Law Enforcement Regional Office within 24 hours

http://fishandboat.com/dir_regions.htm (NC 814-359-5250; NW 814-337-0444) prior to initiating the drilling. Should any release drilling fluid, or sediment to the waters occur please contact the PFBC Bureau of Law Enforcement to address these issues. Any unauthorized disturbance, unpermitted discharge, or release of drilling fluid or sediment(s) that is determined to be a pollution event (generally described <http://www.fish.state.pa.us/fishpub/summary/reporting.html>) per the Pennsylvania Fish and Boat Code will be subject to the appropriate enforcement action.

Provided these recommendations and an approved erosion and sedimentation control plan are followed, as well as any related best management practices, then I do not anticipate the proposed activity to have any significant adverse impacts to the freshwater mussel species of special concern.

The **Blue-spotted Salamander (*Ambystoma laterale*, Endangered)** has been confirmed to occupy areas immediately adjacent to the proposed project area near mile post 14.3 to 14.4 and potential habitat was identified near mile post 6.4 and 13.5 to 13.6, as described in the untitled report dated August 13, 2019 prepared by Ecological Associates and related maps provided. We agree with the report's findings that critical habitat will be avoided by the project because of your choice to bore under the resource and concur with the report's recommendation to use of fencing as a conservation measure for work areas in proximity (within 300 feet) to suitable or confirmed habitat. Provided this conservation measure is implemented, I do not foresee the proposed project resulting in adverse impacts to the Blue-spotted Salamander.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Ken Anderson at 814-560-1201 and refer to the SIR # 50302. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in dark ink, reading "Kenneth R. Anderson, II". The signature is fluid and cursive, with the last name "Anderson" being the most prominent part.

Kenneth R. Anderson, II
Natural Gas Section

KRA/dn

Attachment C

Checklist



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERWAYS ENGINEERING AND WETLANDS

PASPGP-5 REVIEW CHECKLIST

NOTE: This checklist and instructions can be used as a tool to assist permit applicants to determine if a proposed project will be either a U.S. Army Corp of Engineer's Reporting or Non-Reporting action. It is not required to be submitted for a Chapter 105 permit review but, if provided, it may provide clarity to DEP during the permit review.

Applicant / Project Name: National Fuel Gas

County(ies): Cameron, Clearfield,
Clinton, Elk, McKean, Potter

YES ☒ NO ☐ 1. Is any of the proposed work located waterward of the ordinary high water mark (OHWM) of any of the ineligible waterbodies identified in the instructions?

YES ☐ NO ☒ 2. Does the proposed work result in the diversion of more than 10,000 gallons per day of surface water or groundwater into or out of the Great Lakes Basin (Lake Erie Watershed)?

YES ☒ NO ☐ 3. Does the application/registration include any Single and Complete Projects that propose the permanent conversion of greater than 0.10 acre of forested and/or shrub-scrub wetlands in association with a regulated activity?

YES ☐ NO ☒ 4. Is the application/registration associated with a Single and Complete Project whereby a previous Department of the Army authorization has been issued through an Individual Permit, a Nationwide Permit, or a PASPGP processed by the Corps as a Category III/Reporting Activity? **If YES, please complete the following table.**

Authorization Type	Authorization Number	Date (mm/dd/yyyy)	Federal Permitted Impacts	
			Wetlands	Waters

YES ☐ NO ☒ 5. Does the proposed project require the preparation of an Environmental Impact Statement?

YES ☐ NO ☒ 6. Does the proposed regulated activity or area of indirect impact (secondary impact) extend across state boundaries (i.e., the work is not wholly located within the Commonwealth of Pennsylvania)?

YES ☐ NO ☒ 7. Does the Single and Complete Project involve the construction or expansion of a residential, commercial or institutional subdivision or development?

YES ☒ NO ☐ 8. Does greater than 0.25 acre of wetland(s) exist within the property boundary that are not proposed to be directly impacted as part of this application/registration? **If YES, provide wetland acreage: 73.1 acres.**

YES ☐ NO ☒ 9. Are you proposing to protect the wetland area(s) through a deed restriction or conservation easement that follows the Corps' Model Protective Covenant?

YES ☐ NO ☒ 10. Does the proposed work temporarily impact waters and/or wetlands that will remain in place for more than 1 year?

YES ☐ NO ☒ 11. Are you proposing to do work in the Delaware River (upstream from the U.S. Route 202 Bridge in New Hope, Pennsylvania.) and/or the Lehigh River (from the mouth to Francis E. Walter Dam, located in Carbon and Luzerne County, Pennsylvania between March 15 and June 30)?

YES ☐ NO ☒ 12. Does the proposed work occur in any of the waters listed in the instructions?

YES ☒ NO ☐ 13. Will you comply with all of the identified conservation measures?

YES ☒ NO ☐ 14. Is there any other pending applications/registrations with the DEP or Corps that are necessary for this total proposed project to function and meet its intended purpose? **If YES, provide following information.**

Application / Registration Number / Type	Project Name	Date of Submittal to DEP (mm/dd/yyyy)	DEP / CCD Reviewing Office	Corps Reviewing Office

Attachment D

FM100 Modernization/Abandonment Project

Joint Permit Application – Potter County

I, W. Michael Clark, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



1/20/2020

Applicable Drawings / Reports:

- Post Construction Stormwater Management Report / Drawings
- Offsite Discharge Analysis Report / Drawings

For the following Facilities:

- Carpenter Hollow OPP site
- Mainline Block Valve (MLV) 3
- Mainline Block Valve (MLV) 4

FM100 Modernization/Abandonment Project

Joint Permit Application – McKean County

I, W. Michael Clark, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



Applicable Drawings / Reports:

- Post Construction Stormwater Management Report / Drawings
- Offsite Discharge Analysis Report / Drawings

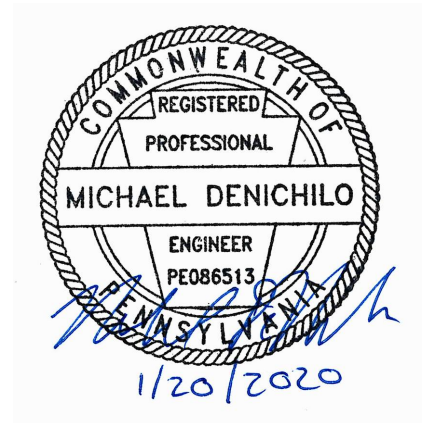
For the following Facilities:

- Marvindale Interconnect
- Mainline Block Valve (MLV) 1
- Mainline Block Valve (MLV) 2

FM100 Modernization/Abandonment Project

Joint Permit Application – McKean County

I, Michael DeNichilo, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



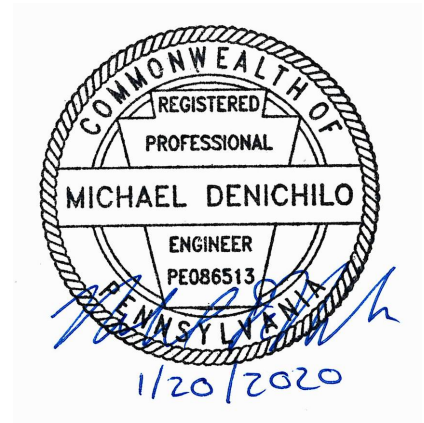
Applicable Drawings / Reports:

- Soil Erosion & Sediment Control for Pipeline & Facilities - Drawings / Narrative
- Site Restoration for Pipeline - Drawings / Narrative
- Water Obstruction and Encroachment Permit Impact Maps

FM100 Modernization/Abandonment Project

Joint Permit Application – Potter County

I, Michael DeNichilo, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



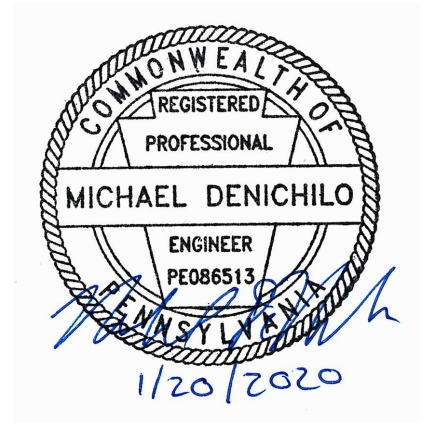
Applicable Drawings / Reports:

- Soil Erosion & Sediment Control for Pipeline & Facilities - Drawings / Narrative
- Site Restoration for Pipeline - Drawings / Narrative
- Water Obstruction and Encroachment Permit Impact Maps

FM100 Modernization/Abandonment Project

Joint Permit Application – Clearfield County

I, Michael DeNichilo, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



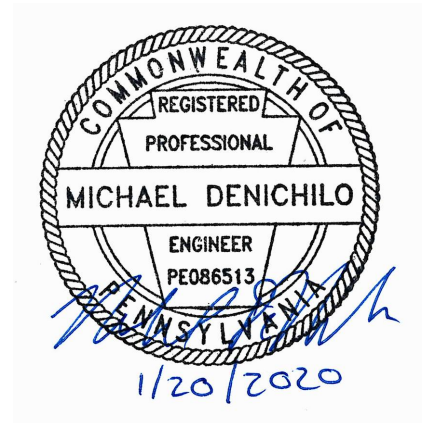
Applicable Drawings / Reports:

- Soil Erosion & Sediment Control for Pipeline & Facilities - Drawings / Narrative
- Site Restoration for Pipeline - Drawings / Narrative
- Water Obstruction and Encroachment Permit Impact Maps

FM100 Modernization/Abandonment Project

Joint Permit Application – Elk County

I, Michael DeNichilo, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



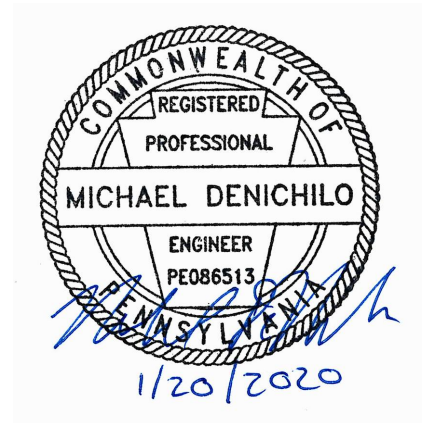
Applicable Drawings / Reports:

- Soil Erosion & Sediment Control for Pipeline & Facilities - Drawings / Narrative
- Site Restoration for Pipeline - Drawings / Narrative
- Water Obstruction and Encroachment Permit Impact Maps

FM100 Modernization/Abandonment Project

Joint Permit Application – Cameron County

I, Michael DeNichilo, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



Applicable Drawings / Reports:

- Soil Erosion & Sediment Control for Pipeline & Facilities - Drawings / Narrative
- Site Restoration for Pipeline - Drawings / Narrative
- Water Obstruction and Encroachment Permit Impact Maps

FM100 Modernization/Abandonment Project

Joint Permit Application – Clinton County

I, Gregory Heilman, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



Greg Heilman
1/22/20

Applicable Drawings / Reports:

- Soil Erosion & Sediment Control Plan for Tamarack Compressor Station - Drawings / Narrative
- Post Construction Stormwater Management Plan for Tamarack Compressor Station - Drawings / Narrative

FM100 Modernization/Abandonment Project

Joint Permit Application – McKean County

I, Gregory Heilman, do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.



Gregory Heilman
1/22/20

Applicable Drawings / Reports:

- Soil Erosion & Sediment Control Plan for Marvindale Compressor Station - Drawings
Narrative
- Post Construction Stormwater Management Plan for Marvindale Compressor Station -
Drawings / Narrative

Attachment E

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/05/17	Designated:	Existing:		600 ft
Latitude	41.788263	Longitude	-78.270619	FGM Level 1 Channel Classification		C	
Evaluator(s)		Stream Name and Information		Notes: 150-200 feet away from railroad and road. Surrounded by a pond, connecting intermittent stream, PSS and PEM wetlands. Average width of approximately 30 ft, average depth of 2 ft. Temporary impacts to 129.25 ft.			
T. Malecki, M. Groomer		Allegheny Portage Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Banks are heavily vegetated

CI = (Score)/20	CI
SCORE	18
	0.90

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments: Tree canopy approximately 40% on the right floodplain and approximately 30% on the left floodplain. Dense herbaceous vegetation with a shrub layer on both sides of the floodplain. Crosses maintained pipeline ROW where most vegetation has been cleared.										
	Optimal				Suboptimal				Marginal				Poor														
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.	
					High				Low				High				Low				High				Low		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1							

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	10%	40%	25%	25%	0%	0.47		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	1.40	4.80	2.25	1.00	0.00			
Left Side	Condition Category							0.46	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	0%	10%	30%	35%	25%	0%			
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	1.40	3.60	3.15	1.00	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Both sides of floodplain include a portion of maintained pipeline ROW.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE	20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1					

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	10%	40%	25%	25%	0%	0.47		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	1.40	4.80	2.25	1.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	10%	30%	35%	25%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.47
	Total Sub-score:	0.00	1.40	3.60	3.15	1.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	18	0.90

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate							Severe																
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.						
						High					Low							High					Low											
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 18					0.90				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments: Banks are vegetated.		
	CI = (Score)/20	CI
	SCORE 18	0.90

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.							Ensure the sum of the % Riparian Area Blocks equal 100			
Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	20%	25%	25%	20%	10%	0%	0.49		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	3.00	2.25	1.40	0.40	0.00			
Condition Category										
Left Side	% Riparian Area:	20%	25%	25%	20%	10%	0%	0.49	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.49
	Total Sub-score:	2.80	3.00	2.25	1.40	0.40	0.00			

Ensure the sum of the % Riparian Area Blocks equal 100

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																			Comments:	
Riparian ZOI	Optimal					Suboptimal					Marginal				Poor					
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with non-maintained		High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9		8

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	15%	15%	20%	25%	25%	0%	0.42			
	Score:	14	12	9	7	4	0				
	Total Sub-score:	2.10	1.80	1.80	1.75	1.00	0.00				
Left Side	Condition Category								CI = (Left Side CI + Right Side CI)/2		CI
	% Riparian Area:	20%	20%	20%	15%	25%	0%	0.45			0.44
	Score:	14	12	9	7	4	0				
	Total Sub-score:	2.80	2.40	1.80	1.05	1.00	0.00				

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	18	0.90

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																																																																																																							
	Negligible					Minor					Moderate							Severe																																																																																																					
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.																																																																																											
						High					Low							High					Low																																																																																																
						SCORE					20					19					18					17							16					15					14					13					12					11					10					9					8					7					6					5					4					3					2					1					SCORE					18	

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.73

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments:		
		CI = (Score)/20
SCORE	13	0.65

Condition Category	Comments:

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.							Ensure the sum of the % Riparian Area Blocks equal 100			
Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	10%	15%	40%	15%	20%	0%	0.43		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	1.80	3.60	1.05	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	10%	15%	40%	15%	20%	0%	0.43	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.43
	Total Sub-score:	1.40	1.80	3.60	1.05	0.80	0.00			

Ensure the sum of the % Riparian Area Blocks equal 100

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:						
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor					
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with no visible insect.		High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
						High			Low			High		Low		High			Low		
						SCORE	20	19	18	17	16	15	14	13		12	11	10	9	8	7

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	15%	15%	30%	30%	0%	0.39			
	Score:	14	12	9	7	4	0				
	Total Sub-score:	1.40	1.80	1.35	2.10	1.20	0.00				
Left Side	Condition Category										
	% Riparian Area:	10%	10%	20%	20%	40%	0%	0.37	CI = (Left Side CI + Right Side CI)/2		CI
	Score:	14	12	9	7	4	0				
	Total Sub-score:	1.40	1.20	1.80	1.40	1.60	0.00				0.38

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	9	0.45

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low					High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6									
SCORE					15					0.75																				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

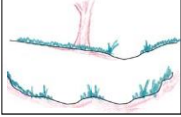
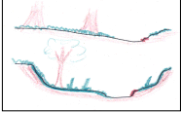
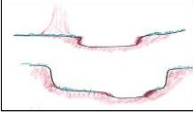
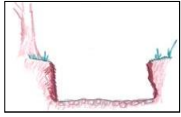
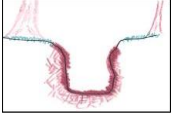
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		09/30/17	Designated:	Existing:		87 ft
Latitude	41.80863	Longitude	-78.22252	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information			Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 8 ft, average depth of 0.5 ft. Temporary impacts to 10 ft.		
J. Miner, M. Groomer		Coleman Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																						
	Optimal				Suboptimal				Marginal				Poor				Severe						
																							
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.						
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.						
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.						
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments:																				
CI = (Score)/20 SCORE80.40																				

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE				20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.																												
2. Estimate the % area within each condition category.																												
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																												
Ensure the sum of the % Riparian Area Blocks equal 100																												
Condition Category																		Side Sub-Index										
Right Side	% Riparian Area:	10%				20%				20%				20%				10%				0.40	Side Sub-Index = SUM(%Areas*Scores)/20					
	Score:	14				12				9				7				4						2				
	Total Sub-score:	1.40				2.40				1.80				1.40				0.80						0.20				
Condition Category																												
Left Side	% Riparian Area:	10%				20%				20%				20%				10%				0.40	CI = (Left Side CI + Right Side CI)/2	CI				
	Score:	14				12				9				7				4							2			
	Total Sub-score:	1.40				2.40				1.80				1.40				0.80							0.20			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	20%	20%	20%	10%	0.34		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	15%	20%	20%	15%	0.32	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.33
	Total Sub-score:	1.40	1.20	1.35	1.40	0.80	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65									

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.38

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project		10/10/17	Designated:	Existing:		650 ft	
Latitude	41.733276	Longitude	-78.443685	FGM Level 1 Channel Classification			C	
Evaluator(s)		Stream Name and Information			Notes: Perennial stream that runs through PSS and PEM wetlands. Average width of approximately 6 ft, average depth of 0.5 ft. Temporary impacts to 7 ft.			
J. Miner, M. Groomer		Donley Fork						

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	12
	0.60

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category															Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor														
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High				Low				High			Low			
					SCORE				20 19 18 17 16				15 14 13 12 11				10 9 8 7 6				5 4 3 2 1						

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																	Comments:															
Riparian ZOI	Optimal					Suboptimal					Marginal				Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE	20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3	2	1					

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.46
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW											
	Negligible					Minor					Moderate									Severe							
						Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.									Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.		
	High					Low					High					Low					CI = (Score)/20					CI	
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.56

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

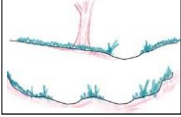
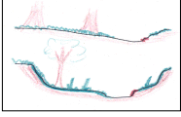
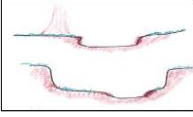
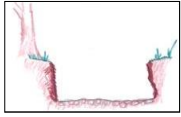
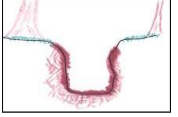
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/06/17	Designated:	Existing:		1330 ft
Latitude	41.753903	Longitude	-78.394116	FGM Level 1 Channel Classification		C	
Evaluator(s)		Stream Name and Information		Notes: Perennial stream that runs through PSS and PEM wetlands. Average width of approximately 90 ft, average depth of 2 ft. Temporary impacts to 205.16 ft.			
J. Miner, M. Groomer		Potato Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																						
	Optimal				Suboptimal				Marginal				Poor				Severe						
																							
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.						
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.						
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.						
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	17
	0.85

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE				20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Condition Category								0.46	CI = (Left Side CI + Right Side CI)/2	CI
Left Side	% Riparian Area:	20%	20%	20%	20%	20%	0%			
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																	Comments:															
Riparian ZOI	Optimal					Suboptimal					Marginal				Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	1			0.43
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.10			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

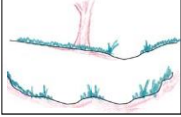
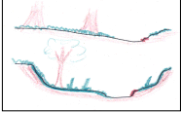
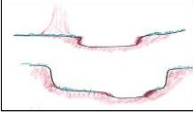
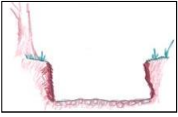
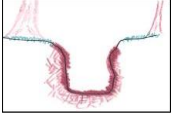
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/06/17	Designated:	Existing:		1330 ft
Latitude	41.753903	Longitude	-78.394116	FGM Level 1 Channel Classification		C	
Evaluator(s)		Stream Name and Information		Notes: Perennial stream that runs through PSS and PEM wetlands. Average width of approximately 90 ft, average depth of 2 ft. Temporary impacts to 205.16 ft.			
J. Miner, M. Groomer		Potato Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	17
	0.85

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
					High		Low		High		Low		High		Low					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1										

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	1			0.43
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.10			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.					
						High					Low								High					Low										
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								SCORE 14

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.64

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

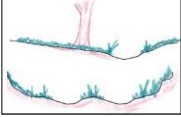
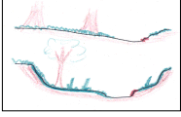
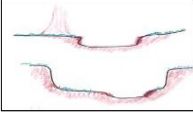
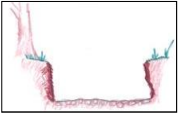
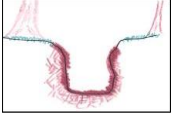
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/10/17	Designated:	Existing:		810 ft
Latitude	41.730039	Longitude	-78.448072	FGM Level 1 Channel Classification		C	
Evaluator(s)		Stream Name and Information		Notes: Perennial stream that runs through PFO and PEM wetlands. Average width of approximately 15 ft, average depth of 1 ft. Temporary impacts to 27 ft.			
J. Miner, M. Groomer		Robbins Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																						
	Optimal				Suboptimal				Marginal				Poor				Severe						
																							
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.						
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.						
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.						
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	16
	0.80

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE				20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Condition Category								0.46	CI = (Left Side CI + Right Side CI)/2	CI
Left Side	% Riparian Area:	20%	20%	20%	20%	20%	0%			
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1							

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.46
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not					Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low					High					Low									
						SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6					

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.66

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	0%	20%	40%	40%	0.31		
	Score:	0	0	0	9	7	4			
	Total Sub-score:	0.00	0.00	0.00	1.80	2.80	1.60			
Left Side	Condition Category									
	% Riparian Area:	0%	0%	0%	20%	40%	40%	0.31	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	0	9	7	4			0.31
	Total Sub-score:	0.00	0.00	0.00	1.80	2.80	1.60			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Both sides of floodplain are surrounded by agricultural pasture land.																			
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																		
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.						
											High					Low					High					Low					High			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	0%	20%	40%	40%	0.31		
	Score:	0	0	0	9	7	4			
	Total Sub-score:	0.00	0.00	0.00	1.80	2.80	1.60			
Left Side	Condition Category									
	% Riparian Area:	0%	0%	0%	20%	40%	40%	0.31	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	0	9	7	4			0.31
	Total Sub-score:	0.00	0.00	0.00	1.80	2.80	1.60			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Culverts feed into and drain creek and the connecting tributaries.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	12	0.60										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

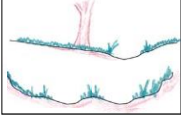
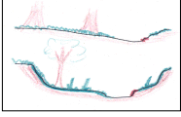
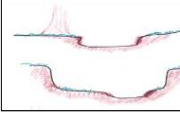
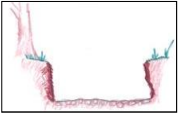
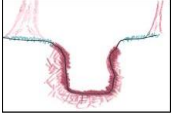
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/04/17	Designated:	Existing:	850 ft	
Latitude	41.704147	Longitude	-78.499271	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that runs across road and through PEM wetland. Connects to multiple streams and has several culverts. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream 001; UNT to Warner Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category								
	Optimal	Suboptimal	Marginal	Poor	Severe				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	12
	0.60

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category						Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20
	% Riparian Area:	20%	10%	10%	30%	20%	10%	
	Score:	14	12	9	7	4	1	
	Total Sub-score:	2.80	1.20	0.90	2.10	0.80	0.10	
Left Side	Condition Category							
	% Riparian Area:	20%	10%	10%	30%	20%	10%	CI = (Left Side CI + Right Side CI)/2
	Score:	14	12	9	7	4	1	
	Total Sub-score:	2.80	1.20	0.90	2.10	0.80	0.10	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																					
Riparian ZOI	Optimal Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					Suboptimal					Marginal					Poor																				
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High					Low					High					Low					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1														

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	10%	10%	30%	20%	10%	0.40		
	Score:	14	12	9	7	4	1			
	Total Sub-score:	2.80	1.20	0.90	2.10	0.80	0.10			
Left Side	Condition Category									
	% Riparian Area:	20%	10%	10%	30%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	1			0.40
	Total Sub-score:	2.80	1.20	0.90	2.10	0.80	0.10			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	6	0.30

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses road and has several culverts														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/04/17	Designated:	Existing:		140 ft
Latitude	41.704438	Longitude	-78.499989	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information			Notes: Intermittent stream with spring head and pond at road crossing. Average width of approximately 2 ft, average depth of 0.5 ft. Temporary impacts to 4 ft.		
J. Miner, M. Groomer		Stream 005; UNT to Warner Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Banks are heavily vegetated

CI = (Score)/20	CI
SCORE	13
	0.65

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category																Comments: Tree canopy cover on right side is approximately 40 percent with dense shrub and herbaceous stratus. Left side has less vegetation as it is near the road.														
Optimal				Suboptimal				Marginal				Poor																		
Riparian Vegetation (Floodplain)	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
					High				Low				High					Low				High				Low				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index		Side Sub-Index = SUM(%Areas*Scores)/20
Right Side	% Riparian Area:	0%	55%	20%	20%	5%	0%	0.61		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	7.70	2.40	1.80	0.20	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	20%	30%	30%	20%	0%	0.50	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	2.80	3.60	2.70	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																Comments: Right side of floodplain is heavily vegetated and has multiple wetlands and streams within 100 feet. Left side of floodplain has multiple wetlands and a stream. It also has roads within 100 feet and is less vegetated than the right side.																
Riparian ZOI	Optimal					Suboptimal					Marginal				Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
											High						Low					High				Low				High		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	50%	20%	20%	5%	5%	0.59		
	Score:	0	14	12	9	7	4			
	Total Sub-score:	0.00	7.00	2.40	1.80	0.35	0.20			
Left Side	Condition Category									
	% Riparian Area:	20%	20%	20%	20%	5%	15%	0.44	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	1			0.51
	Total Sub-score:	2.80	2.40	1.80	1.40	0.20	0.15			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses road														
	Negligible					Minor					Moderate								Severe											
						Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not													Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.	
					High					Low										CI = (Score)/20		CI								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70							

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.59

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

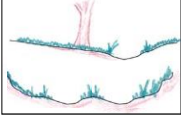
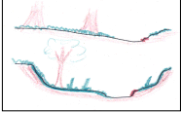
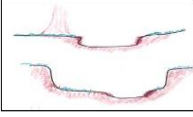
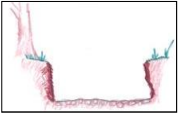
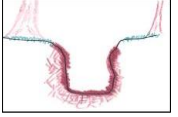
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/09/17	Designated: Existing:		420 ft
Latitude	41.709713	Longitude	-78.484439	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that runs through PEM and PFO wetlands. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream 006; UNT to Red Mill Brook				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category								
	Optimal	Suboptimal	Marginal	Poor	Severe				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	12
	0.60

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category				Comments:	
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category	Right Side	Left Side	CI = (Left Side CI + Right Side CI)/2	CI
% Riparian Area:	20%	20%	0.46	0.46
Score:	14	12	0	
Total Sub-score:	2.80	2.40	0.00	
Condition Category	Right Side	Left Side	CI = (Left Side CI + Right Side CI)/2	CI
% Riparian Area:	20%	20%	0.46	0.46
Score:	14	12	0	
Total Sub-score:	2.80	2.40	0.00	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1											

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.46
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	CI = (Score)/20	CI	
																					SCORE	7	0.35

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

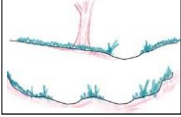
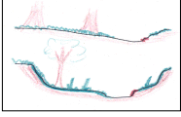
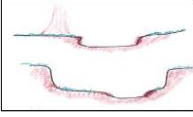
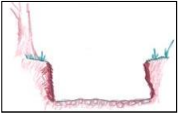
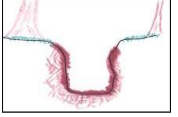
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/09/17	Designated: Existing:		800 ft
Latitude	41.711613	Longitude	-78.480528	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Perennial stream that runs through PEM and PFO wetlands and two ponds. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 4 ft.		
J. Miner, M. Groomer		Stream 007; UNT to Red Mill Brook				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category								
	Optimal	Suboptimal	Marginal	Poor	Severe				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	16
	0.80

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Left Side	Condition Category							0.46	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	20%	20%	20%	20%	20%	0%			
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.46
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

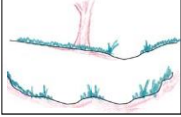
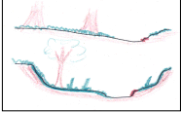
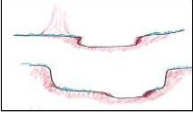
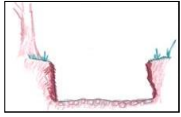
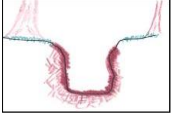
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/09/17	Designated:	Existing:		540 ft
Latitude	41.713413	Longitude	-78.477334	FGM Level 1 Channel Classification			B
Evaluator(s)		Stream Name and Information			Notes: Runs through a PFO and PEM wetland. Average width of approximately 5 ft, average depth of 0.5 ft. Temporary impacts to 6.5 ft.		
T. Malecki, M. Groomer		Stream 008; UNT to Red Mill Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.			
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.			
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE 20 19 18 17				16 15 14 13				12 11 10 9				8 7 6 5				4 3 2 1			

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE 14	0.70

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments: Majority of the stream runs through a PFO wetland, and the remainder runs through a PEM wetland. Small portion of the stream occurs in maintained pipeline ROW.												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE 20 19 18 17 16				15 14 13 12 11				10 9 8 7 6					5 4 3 2 1											

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category	0%	40%	40%	10%	10%	0%	Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	40%	40%	10%	10%	0%			
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			
Left Side	Condition Category	0%	40%	40%	10%	10%	0%	0.59	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	0%	40%	40%	10%	10%	0%			
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.59
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	5	0.25

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW.														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.										RCI = (Sum of all CI's)/5					RCI
															0.57

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/09/17	Designated:	Existing:	400 ft	
Latitude	41.714609	Longitude	-78.474887	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information			Notes: Runs through a PFO wetland. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
T. Malecki, M. Groomer		Stream 011; UNT to Red Mill Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE	13
	0.65

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments: Stream runs through a PFO wetland and maintained pipeline ROW.											
	Optimal				Suboptimal				Marginal				Poor															
Riparian Vegetation (Floodplain)	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High				Low				High				Low			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1							

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			
	Condition Category									
Left Side	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.59
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal								Poor				
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	4	0.20

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

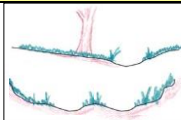
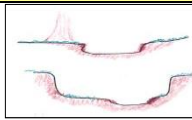
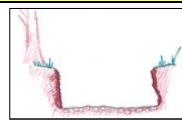
RCI

0.55

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20		CI
SCORE	12	0.60

Condition Category															Comments: Stream runs through a PEM wetland and maintained pipeline ROW.					
Riparian Vegetation (Floodplain)	Optimal					Suboptimal		Marginal		Poor										
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
						High	Low	High	Low	High	Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.	Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.59
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.59
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW.														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/09/17	Designated:	Existing:	840 ft	
Latitude	41.715266	Longitude	-78.473937	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Tributary to Stream 012. Average width of approximately 3.5 ft, average depth of 0.5 ft. Temporary impacts to 1 ft.			
T. Malecki, M. Groomer		Stream 014; UNT to Red Mill Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE12CI0.60															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																			
2. Estimate the % area within each condition category.																			
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																			
Ensure the sum of the % Riparian Area Blocks equal 100																			
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59											
	Score:	0	14	12	9	4	0												
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00												
Left Side	Condition Category																0.59	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	0%	40%	40%	10%	10%	0%												
	Score:	0	14	12	9	4	0												
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00												

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																		
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High				Low				High				Low					
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1				

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	40%	40%	10%	10%	0%	0.59	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.59
	Total Sub-score:	0.00	5.60	4.80	0.90	0.40	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW.														
	Negligible					Minor					Moderate							Severe												
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.		
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

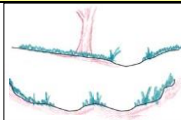
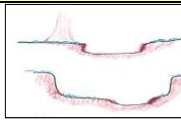
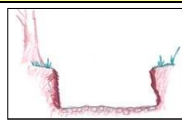
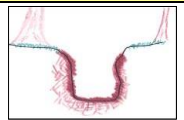
RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Channel Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 2) stable point bars and bankfull benches may be present; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category																	Comments:				
Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor					
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained			High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
						High		Low		High			Low		High			Low			
						SCORE	20	19	18	17	16	15	14	13	12	11		10	9	8	7

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	30%	20%	30%	0%	0.47		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	2.80	3.60	1.80	1.20	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	20%	30%	20%	30%	0%	0.47	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.47
	Total Sub-score:	0.00	2.80	3.60	1.80	1.20	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																	Comments: Stream runs through a PEM wetland and maintained pipeline ROW. There are multiple PEM wetlands surrounding the stream and one PFO wetland.																			
Optimal					Suboptimal					Marginal					Poor																					
Riparian ZOI	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High					Low					High					Low					
						SCORE	20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	30%	30%	10%	10%	0%	0.46		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	4.20	3.60	0.90	0.40	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	30%	30%	10%	10%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.46
	Total Sub-score:	0.00	4.20	3.60	0.90	0.40	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20		CI																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	5	0.25

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

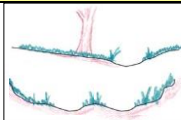
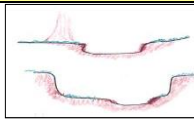
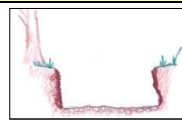
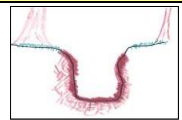
RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20	CI
SCORE 11	0.55

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.	Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	30%	25%	25%	0%	0.48		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	2.80	3.60	2.25	1.00	0.00			
	Condition Category									
Left Side	% Riparian Area:	0%	20%	30%	25%	25%	0%	0.48	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.48
	Total Sub-score:	0.00	2.80	3.60	2.25	1.00	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream runs through maintained pipeline ROW, PFO and PEM wetland. There is another intermittent stream and PEM wetland within 150-200 ft.																					
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																				
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
											High					Low					High					Low					High					Low
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1																

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	30%	25%	25%	0%	0.48		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	2.80	3.60	2.25	1.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	20%	30%	25%	25%	0%	0.48	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.48
	Total Sub-score:	0.00	2.80	3.60	2.25	1.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	4	0.20

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW and two culverts are on the stream.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							
SCORE					13					0.65																							

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

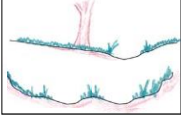
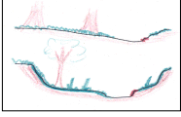
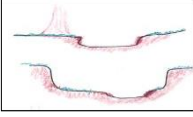
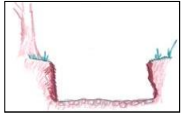
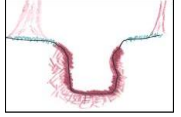
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/08/17	Designated:	Existing:	265 ft	
Latitude	41.720129	Longitude	-78.464934	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Runs through maintained pipeline ROW, a PFO and PEM wetland. Average width of approximately 2.5 ft, average depth of 0.3 ft. Temporary impacts to 2.5 ft.			
T. Malecki, M. Groomer		Stream 020; UNT to Red Mill Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:																			
CI = (Score)/20 SCORE11CI0.55																			

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.											
2. Estimate the % area within each condition category.											
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.											
Ensure the sum of the % Riparian Area Blocks equal 100											
Right Side	Condition Category										
	% Riparian Area:	0%	20%	30%	25%	25%	0%	0.48	Side Sub-Index = SUM(%Areas*Scores)/20		
	Score:	0	14	12	9	4	0				
	Total Sub-score:	0.00	2.80	3.60	2.25	1.00	0.00				
Left Side	Condition Category										
	% Riparian Area:	0%	20%	30%	25%	25%	0%	0.48	CI = (Left Side CI + Right Side CI)/2		CI
	Score:	0	14	12	9	4	0				
	Total Sub-score:	0.00	2.80	3.60	2.25	1.00	0.00				

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																	Comments: Stream runs through maintained pipeline ROW, PFO and PEM wetland. There is another intermittent stream and PEM wetland within 150-200 ft. There are two ponds within 80 ft.															
Riparian ZOI	Optimal					Suboptimal					Marginal				Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
											High					Low					High				Low				High			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	30%	20%	10%	20%	0.49		
	Score:	0	14	12	9	7	4			
	Total Sub-score:	0.00	2.80	3.60	1.80	0.70	0.80			
Left Side	Condition Category									
	% Riparian Area:	0%	20%	30%	20%	10%	20%	0.49	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	7	4			0.49
	Total Sub-score:	0.00	2.80	3.60	1.80	0.70	0.80			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	4	0.20

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW and two culverts are on the stream.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

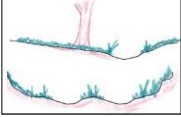
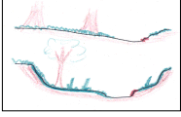
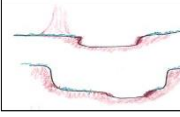
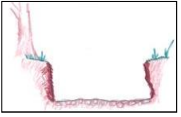
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/09/17	Designated:	Existing:	55 ft
Latitude	41.722494	Longitude	-78.453977	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream021; UNT to Red Mill Brook				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category						
	Optimal	Suboptimal	Marginal	Poor	Severe		
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments:	CI = (Score)/20	CI
	SCORE	9 0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		

1. Identify Condition Category areas along the floodplain using the descriptors above.						
2. Estimate the % area within each condition category.						
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.						
Ensure the sum of the % Riparian Area Blocks equal 100						
Right Side	Condition Category					Side Sub-Index
	% Riparian Area:	10%	10%	10%	10%	30%
	Score:	14	12	9	7	4
Total Sub-score:		1.40	1.20	0.90	0.70	1.20
Left Side	Condition Category					
	% Riparian Area:	10%	10%	10%	10%	30%
	Score:	14	12	9	7	4
Total Sub-score:		1.40	1.20	0.90	0.70	1.20
CI = (Left Side CI + Right Side CI)/2						CI
						0.30

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
											High					Low					High				Low				High			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	10%	10%	30%	30%	0.30		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	0.90	0.70	1.20	0.60			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	10%	10%	30%	30%	0.30	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.30
	Total Sub-score:	1.40	1.20	0.90	0.70	1.20	0.60			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20		CI
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 2		0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1						
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI		
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 11					0.55		

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.34

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

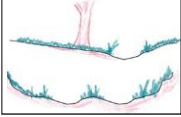
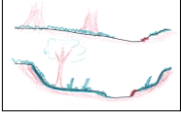
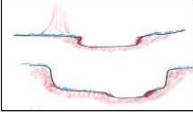
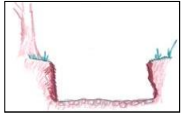
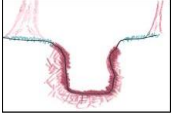
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/09/17	Designated: Existing:		92 ft
Latitude	41.717799	Longitude	-78.452962	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream022; UNT to Red Mill Brook				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category								
	Optimal	Suboptimal	Marginal	Poor	Severe				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments:	CI = (Score)/20	CI
	SCORE	9 0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.							
2. Estimate the % area within each condition category.							
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.							
Ensure the sum of the % Riparian Area Blocks equal 100							
Right Side	Condition Category					Side Sub-Index	
	% Riparian Area:	10%	10%	10%	35%	35%	0%
	Score:	14	12	9	7	4	0
Total Sub-score: 1.40 1.20 0.90 2.45 1.40 0.00							
Left Side	Condition Category						
	% Riparian Area:	10%	10%	10%	35%	35%	0%
	Score:	14	12	9	7	4	0
Total Sub-score: 1.40 1.20 0.90 2.45 1.40 0.00							
CI = (Left Side CI + Right Side CI)/2							
CI							
0.37							

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	10%	35%	35%	0%	0.37		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	1.20	0.90	2.45	1.40	0.00			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	10%	35%	35%	0%	0.37	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.37
	Total Sub-score:	1.40	1.20	0.90	2.45	1.40	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate							Severe																
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.						
						High					Low							High					Low											
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 15					0.75				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

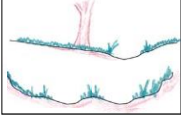
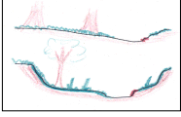
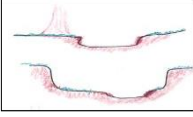
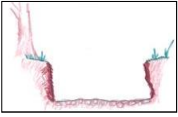
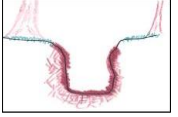
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/09/17	Designated:	Existing:	65 ft
Latitude	41.716627	Longitude	-78.451536	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream023; UNT to Red Mill Brook				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:

CI = (Score)/20	CI
SCORE	9
	0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.													
								High	Low	High	Low	High	Low							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
Right Side	% Riparian Area:	10%	10%	10%	30%	40%	0%			
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	1.20	0.90	2.10	1.60	0.00			
Condition Category										
Left Side	% Riparian Area:	10%	10%	10%	30%	40%	0%	0.36	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	1.20	0.90	2.10	1.60	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	10%	30%	40%	0%	0.36		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	1.20	0.90	2.10	1.60	0.00			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	10%	30%	40%	0%	0.36	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.36
	Total Sub-score:	1.40	1.20	0.90	2.10	1.60	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.40

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments:

CI = (Score)/20		CI
SCORE	9	0.45

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7

Area Blocks equal 100		
Side Sub-Index = $\text{SUM}(\% \text{Areas} * \text{Scores}) / 20$		
CI = (Left Side CI + Right Side CI) / 2		CI
		0.23

- Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20
	% Riparian Area:	5%	5%	5%	5%	40%	40%	0.23	
	Score:	14	12	9	7	4	2		
	Total Sub-score:	0.70	0.60	0.45	0.35	1.60	0.80		
Left Side	Condition Category								CI = (Left Side CI + Right Side CI)/2
	% Riparian Area:	5%	5%	5%	5%	40%	40%	0.23	
	Score:	14	12	9	7	4	2		
	Total Sub-score:	0.70	0.60	0.45	0.35	1.60	0.80		

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1											

Riverine Assessment Form 1

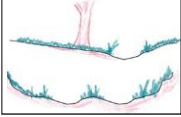
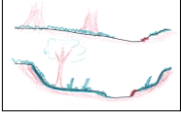
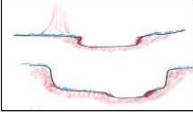
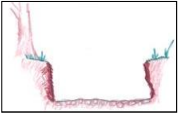
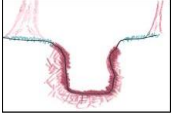
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/09/17	Designated:	Existing:		230 ft
Latitude	41.71266	Longitude	-78.446597	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream025; UNT to Red Mill Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE		9
			0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.											
2. Estimate the % area within each condition category.											
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.											
Ensure the sum of the % Riparian Area Blocks equal 100											
Right Side	Condition Category								Side Sub-Index		
	% Riparian Area:	10%	10%	15%	15%	30%	20%	0.33	Side Sub-Index = SUM(%Areas*Scores)/20		
	Score:	14	12	9	7	4	2				
	Total Sub-score:	1.40	1.20	1.35	1.05	1.20	0.40				
Left Side	Condition Category								0.33	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	10%	10%	15%	15%	30%	20%				
	Score:	14	12	9	7	4	2				
	Total Sub-score:	1.40	1.20	1.35	1.05	1.20	0.40			0.33	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1							

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	15%	15%	30%	20%	0.33		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.35	1.05	1.20	0.40			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	15%	15%	30%	20%	0.33	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.33
	Total Sub-score:	1.40	1.20	1.35	1.05	1.20	0.40			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	12	0.60										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.36

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

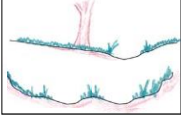
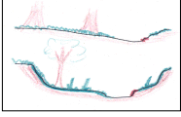
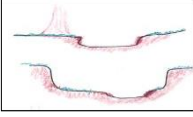
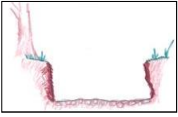
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/09/17	Designated: Existing:		230 ft
Latitude	41.71266	Longitude	-78.446597	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream025; UNT to Red Mill Brook				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category						
	Optimal	Suboptimal	Marginal	Poor	Severe		
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments:	CI = (Score)/20	CI
	SCORE	9 0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category				Comments:	
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.								
2. Estimate the % area within each condition category.								
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.								
Ensure the sum of the % Riparian Area Blocks equal 100								
Right Side	Condition Category						Side Sub-Index	
	% Riparian Area:	10%	10%	15%	15%	30%	20%	
	Score:	14	12	9	7	4	2	
	Total Sub-score:	1.40	1.20	1.35	1.05	1.20	0.40	
Left Side	Condition Category							
	% Riparian Area:	10%	10%	15%	15%	30%	20%	
	Score:	14	12	9	7	4	2	
	Total Sub-score:	1.40	1.20	1.35	1.05	1.20	0.40	
						0.33	CI = (Left Side CI + Right Side CI)/2	CI
								0.33

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	15%	15%	30%	20%	0.33		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.35	1.05	1.20	0.40			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	15%	15%	30%	20%	0.33	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.33
	Total Sub-score:	1.40	1.20	1.35	1.05	1.20	0.40			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20		CI
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 2		0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	12	0.60										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

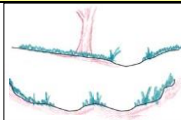
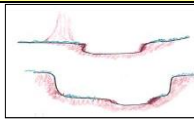
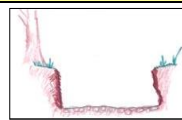
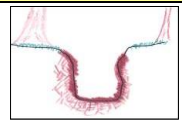
RCI

0.36

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20	CI
SCORE 10	0.50

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						High		Low		High		Low		High		Low				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20
	% Riparian Area:	0%	30%	40%	10%	20%	0%	0.54	
	Score:	0	14	12	9	4	0		
	Total Sub-score:	0.00	4.20	4.80	0.90	0.80	0.00		
Left Side	Condition Category								
	% Riparian Area:	0%	30%	40%	10%	20%	0%	0.54	CI = (Left Side CI + Right Side CI)/2 CI
	Score:	0	14	12	9	4	0		
	Total Sub-score:	0.00	4.20	4.80	0.90	0.80	0.00		

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream runs through maintained pipeline ROW and PEM wetland. Drains into PFO wetland.																						
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																					
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																	

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	30%	40%	10%	20%	0%	0.54		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	4.20	4.80	0.90	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	30%	40%	10%	20%	0%	0.54	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.54
	Total Sub-score:	0.00	4.20	4.80	0.90	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW and four culverts are on the stream.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.46

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments:

CI = (Score)/20		CI
SCORE	12	0.60

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor																			
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained					High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High					Low					High					Low				
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

Area Blocks equal 100	
	Side Sub-Index = $\text{SUM}(\% \text{Areas} * \text{Scores}) / 20$

- Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	20%	30%	30%	0%	0.38		
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	2.40	1.80	2.10	1.20	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	20%	20%	30%	30%	0%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	0			0.38
	Total Sub-score:	0.00	2.40	1.80	2.10	1.20	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																		
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High				Low				High				Low					
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1				

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	20%	30%	30%	0%	0.38		
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	2.40	1.80	2.10	1.20	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	20%	20%	30%	30%	0%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	0			0.38
	Total Sub-score:	0.00	2.40	1.80	2.10	1.20	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	6	0.30

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.47

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

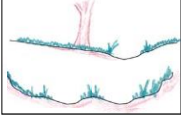
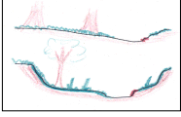
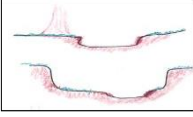
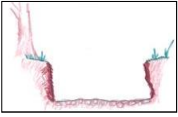
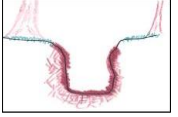
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	586 ft	
Latitude	41.742997	Longitude	-78.425544	FGM Level 1 Channel Classification		A	
Evaluator(s)		Stream Name and Information		Notes: Runs through maintained pipeline ROW, access road, PEM and PFO wetland. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 030; UNT to Robbins Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	9	0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category								Side Sub-Index	
	% Riparian Area:	0%	25%	25%	20%	30%	0%	0.48	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	3.50	3.00	1.80	1.20	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	25%	25%	20%	30%	0%	0.48	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	3.50	3.00	1.80	1.20	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																	Comments: Stream runs through maintained pipeline ROW, PEM and PFO wetland. Another PFO wetland is above the stream and there is a ditch within 100 ft.																			
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																				
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
											High					Low					High					Low					High					Low
SCORE		2019181716					1514131211					109876					54321																			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	30%	20%	20%	30%	0%	0.48		
	Score:	0	14	12	9	4	0			
	Total Sub-score:	0.00	4.20	2.40	1.80	1.20	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	30%	20%	20%	30%	0%	0.48	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	4	0			0.48
	Total Sub-score:	0.00	4.20	2.40	1.80	1.20	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:								
	Optimal					Suboptimal					Marginal								Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.								
																					CI = (Score)/20			CI
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Portion of stream runs through maintained pipeline ROW, access road, and four culverts are on the stream.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

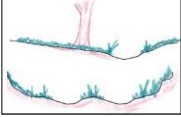
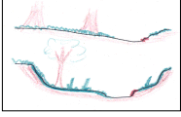
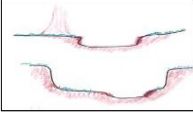
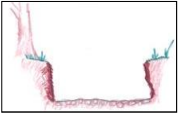
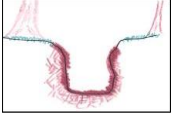
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	55 ft	
Latitude	41.736162	Longitude	-78.407973	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Runs across access road. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 032; UNT to Robbins Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:																			
	CI = (Score)/20 SCORE80.40																		

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category									
	% Riparian Area:	0%	15%	15%	10%	60%	0%	0.28	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00			
Left Side										
Left Side	Condition Category									
	% Riparian Area:	0%	15%	15%	10%	60%	0%	0.28	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream across access road.																					
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																				
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
	SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1															

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40		
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	4	2	0			0.40
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream runs under access road through two culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							
SCORE					10					0.50																							

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

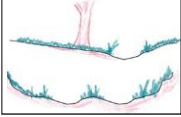
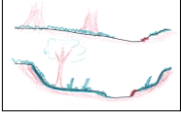
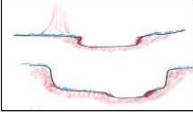
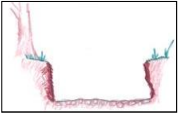
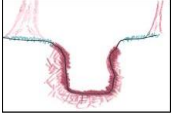
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	87 ft	
Latitude	41.73597	Longitude	-78.406383	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Runs across access road. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 033; UNT to Robbins Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:

CI = (Score)/20		CI
SCORE	8	0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	0%	15%	15%	10%	60%	0%	0.28		
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	15%	15%	10%	60%	0%	0.28	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream across access road.																			
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																		
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1									

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40		
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	4	2	0			0.40
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream runs across access road.														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	10	0.50						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

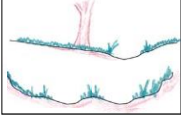
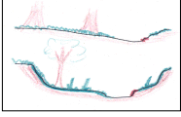
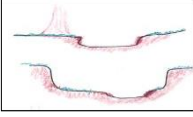
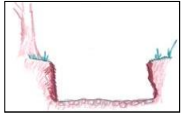
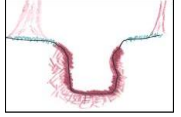
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/07/17	Designated:	Existing:		58 ft
Latitude	41.736509	Longitude	-78.404287	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Runs across access road. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 034; UNT to Robbins Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	8	0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category								Side Sub-Index	
	% Riparian Area:	0%	15%	15%	10%	60%	0%	0.28	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00			
Left Side										
Left Side	Condition Category									
	% Riparian Area:	0%	15%	15%	10%	60%	0%	0.28	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream across access road.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low												
SCORE	20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1																	

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40		
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	4	2	0			0.40
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream runs under access road through two culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
	SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 10		0.50					

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.	RCI = (Sum of all CI's)/5	0.33

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

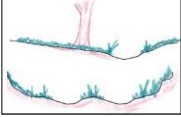
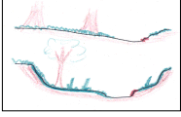
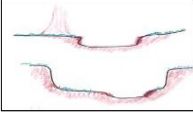
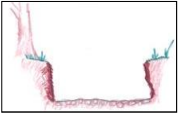
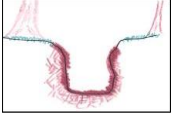
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	56 ft	
Latitude	41.737025	Longitude	-78.402793	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information			Notes: Runs across access road. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.		
T. Malecki, M. Groomer		Stream 035; UNT to Robbins Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE80.40															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:										
	Optimal				Suboptimal				Marginal				Poor														
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.	
					High				Low				High				Low				High				Low		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1							

1. Identify Condition Category areas along the floodplain using the descriptors above.																		
2. Estimate the % area within each condition category.																		
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																		
Ensure the sum of the % Riparian Area Blocks equal 100																		
Right Side	Condition Category															Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	15%	15%	10%	60%	0%	0.28										
	Score:	0	14	12	4	2	0											
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00											
Left Side	Condition Category															0.28	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	0%	15%	15%	10%	60%	0%											
	Score:	0	14	12	4	2	0											
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00											

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream across access road.																					
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																				
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High					Low					High					Low					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1														

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40		
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	4	2	0			0.40
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream runs under access road through two culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	10	0.50										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.33

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

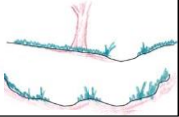
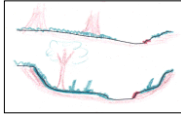
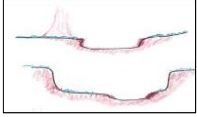
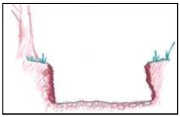
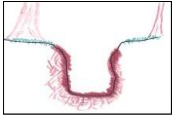
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

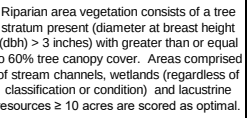
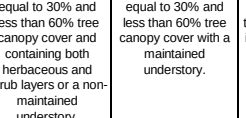
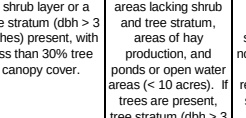
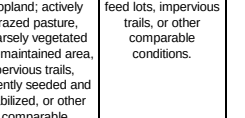
Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	57 ft	
Latitude	41.737597	Longitude	-78.400794	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Runs across access road. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 036; UNT to Robbins Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
 Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.	 Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.	 Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.	 Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.	 Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.	
					SCORE

Comments:	CI = (Score)/20	CI
	SCORE	8 0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
 Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	 High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	 High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover. Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	 High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition. Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
				SCORE	20 19 18 17 16	15 14 13 12 11

1. Identify Condition Category areas along the floodplain using the descriptors above.									
2. Estimate the % area within each condition category.									
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.									
Ensure the sum of the % Riparian Area Blocks equal 100									
Right Side	Condition Category						Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	15%	15%	10%	60%	0%		
	Score:	0	14	12	4	2	0		
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00		
Left Side	Condition Category								
	% Riparian Area:	0%	15%	15%	10%	60%	0%		
	Score:	0	14	12	4	2	0		
	Total Sub-score:	0.00	2.10	1.80	0.40	1.20	0.00		
							0.28	CI = (Left Side CI + Right Side CI)/2	CI
									0.28

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream across access road.					
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor				
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with	High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40		
	Score:	0	14	12	4	2	0			
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	4	2	0			0.40
	Total Sub-score:	0.00	3.50	3.00	1.00	0.50	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream runs under access road through two culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	10	0.50										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

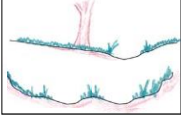
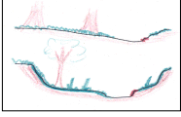
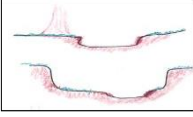
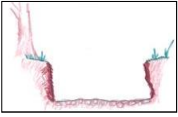
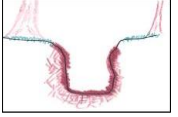
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/06/17	Designated:	Existing:	649 ft	
Latitude	41.752819	Longitude	-78.397447	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Runs across maintained pipeline ROW. Stream is surrounded by PEM and PSS wetlands. Average width of approximately 30 ft, average depth of 1.5 ft. Temporary impacts to 26.2 ft.			
T. Malecki, M. Groomer		Stream 037; UNT to Boyer Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category								
	Optimal	Suboptimal	Marginal	Poor	Severe				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE	15
	0.75

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category				Comments:	
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category						Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	30%	20%	25%	0%		
	Score:	0	11	9	8	4	0		
	Total Sub-score:	0.00	2.75	2.70	1.60	1.00	0.00		
Left Side	Condition Category								
	% Riparian Area:	0%	25%	30%	20%	25%	0%	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	11	9	8	4	0		
	Total Sub-score:	0.00	2.75	2.70	1.60	1.00	0.00		

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream crosses maintained pipeline ROW, and is surrounded by PEM and PSS wetlands. Agricultural pasture within 100 ft.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						SCORE					20 19 18 17 16					15 14 13 12 11					High 10 9 8				Low 7 6				5 4 3			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	30%	20%	30%	0%	0.41		
	Score:	0	11	9	8	4	0			
	Total Sub-score:	0.00	2.75	2.70	1.60	1.20	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	25%	30%	20%	30%	0%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	11	9	8	4	0			0.41
	Total Sub-score:	0.00	2.75	2.70	1.60	1.20	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream crosses maintained pipeline ROW.														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	17	0.85						

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.61

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

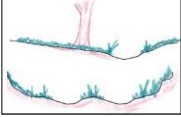
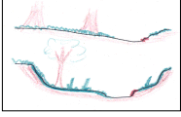
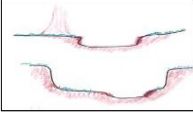
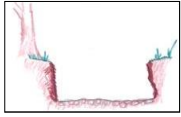
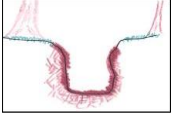
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/06/17	Designated:	Existing:	218 ft	
Latitude	41.754415	Longitude	-78.38979	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Perennial stream that crosses maintained ROW. Average width of approximately 4 ft, average depth of 0.5 ft. Temporary impacts to 5 ft.			
J. Miner, M. Groomer		Stream 038; UNT to Potato Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																						
	Optimal				Suboptimal				Marginal				Poor				Severe						
																							
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.						
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.						
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.						
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	12
	0.60

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE				20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index		Side Sub-Index = SUM(%Areas*Scores)/20
Right Side	% Riparian Area:	20%	20%	25%	25%	10%	0%	0.48		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	2.25	1.75	0.40	0.00			
Condition Category										
Left Side	% Riparian Area:	20%	20%	25%	25%	10%	0%	0.48	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	2.25	1.75	0.40	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	25%	15%	0%	0.47		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.75	0.60	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	20%	20%	25%	15%	0%	0.47	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.47
	Total Sub-score:	2.80	2.40	1.80	1.75	0.60	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	8	0.40

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW and has two culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							
SCORE					11					0.55																							

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.50

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/06/17	Designated:	Existing:		1878 ft
Latitude	41.754396	Longitude	-78.389592	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information			Notes: Intermittent stream that crosses maintained ROW. Average width of approximately 4 ft, average depth of 0.5 ft. Temporary impacts to 4 ft.		
J. Miner, M. Groomer		Stream 039; UNT to Potato Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	12
	0.60

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category															Comments:														
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
					High				Low				High				Low				High				Low				
					SCORE				20	19	18	17	16	15		14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	20%	20%	25%	25%	10%	0%	0.48		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	2.25	1.75	0.40	0.00			
Condition Category										
Left Side	% Riparian Area:	20%	20%	25%	25%	10%	0%	0.48	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	2.25	1.75	0.40	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.46
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
																					CI = (Score)/20		CI
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	8	0.40

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Crosses maintained ROW and has two culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							
SCORE					11					0.55																							

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.50

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/07/17	Designated:	Existing:		175 ft
Latitude	41.757159	Longitude	-78.375159	FGM Level 1 Channel Classification		A	
Evaluator(s)		Stream Name and Information			Notes: Ephemeral stream with average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream 040; UNT to Walcott Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																						
	Optimal				Suboptimal				Marginal				Poor				Severe						
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.						
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.						
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.						
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	9
	0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE				20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	30%	20%	30%	20%	0%	0%	0.54		
	Score:	14	12	9	7	0	0			
	Total Sub-score:	4.20	2.40	2.70	1.40	0.00	0.00			
Left Side	Condition Category							0.54	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	30%	20%	30%	20%	0%	0%			
	Score:	14	12	9	7	0	0			
	Total Sub-score:	4.20	2.40	2.70	1.40	0.00	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	30%	20%	30%	20%	0%	0%	0.54		
	Score:	14	12	9	7	0	0			
	Total Sub-score:	4.20	2.40	2.70	1.40	0.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	30%	20%	30%	20%	0%	0%	0.54	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	0	0			0.54
	Total Sub-score:	4.20	2.40	2.70	1.40	0.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80								

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.49

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:		475 ft	
Latitude	41.757352	Longitude	-78.375298	FGM Level 1 Channel Classification		B		
Evaluator(s)		Stream Name and Information			Notes: Perennial stream that crosses maintained ROW, PEM and PFO wetlands. Average width of approximately 7 ft, average depth of 0.5 ft. Temporary impacts to 9.44 ft.			
J. Miner, M. Groomer		Stream 041; UNT to Walcott Brook						

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	12
	0.60

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category															Comments:																					
Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor																				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained					High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High					Low					High					Low					
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1										

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	30%	20%	20%	20%	20%	0%	0.53	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.50
	Total Sub-score:	4.20	2.40	1.80	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	10	0.50

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate							Severe																
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.						
						High					Low							High					Low											
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI				
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 16					0.80				

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.57

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

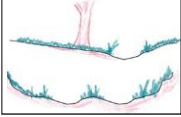
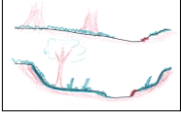
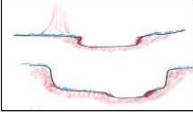
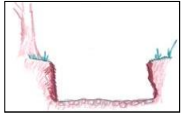
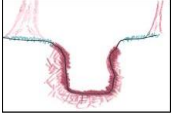
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:		538 ft	
Latitude	41.75721	Longitude	-78.372317	FGM Level 1 Channel Classification			B	
Evaluator(s)		Stream Name and Information			Notes: Runs across maintained pipeline ROW and two PEM wetlands. Average width of approximately 15 ft, average depth of 1.5 ft. Temporary impacts to 16.71 ft.			
T. Malecki, M. Groomer		Stream 043; UNT to Walcott Brook						

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Banks are heavily vegetated.

CI = (Score)/20		CI
SCORE	15	0.75

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category															Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor														
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High				Low				High			Low			
					SCORE				20	19	18	17	16	15		14	13	12	11	10	9	8	7	6	5	4	3

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
Right Side	% Riparian Area:	0%	0%	30%	30%	40%	0%			
	Score:	0	0	9	8	4	0			
	Total Sub-score:	0.00	0.00	2.70	2.40	1.60	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	0%	30%	30%	40%	0%	0.34	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	9	8	4	0			
	Total Sub-score:	0.00	0.00	2.70	2.40	1.60	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream crosses maintained pipeline ROW and two PEM wetlands.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	30%	30%	40%	0%	0.34		
	Score:	0	0	9	8	4	0			
	Total Sub-score:	0.00	0.00	2.70	2.40	1.60	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	0%	30%	30%	40%	0%	0.34	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	9	8	4	0			0.34
	Total Sub-score:	0.00	0.00	2.70	2.40	1.60	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	12	0.60

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream crosses maintained pipeline ROW.														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterion, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.56

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

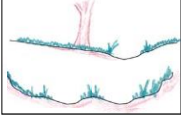
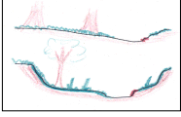
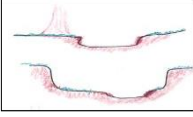
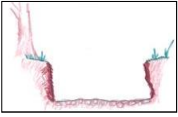
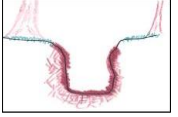
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	50 ft	
Latitude	41.749045	Longitude	-78.37657	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Drains PEM wetland. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream044; UNT to Walcott Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:																			
	CI = (Score)/20 SCORE90.45																		

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.																			
2. Estimate the % area within each condition category.																			
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										Ensure the sum of the % Riparian Area Blocks equal 100									
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	20%	20%	15%	20%	10%	0.42	CI = (Left Side CI + Right Side CI)/2	CI									
	Score:	14	12	9	7	4	2												
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20												
Left Side	Condition Category																		0.42
	% Riparian Area:	15%	20%	20%	15%	20%	10%												
	Score:	14	12	9	7	4	2												
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20												

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3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	20%	20%	15%	20%	10%	0.42		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	20%	20%	15%	20%	10%	0.42	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.42
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	12	0.60										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	85 ft	
Latitude	41.760339	Longitude	-78.366277	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 2.5 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream045; UNT to Walcott Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE80.40															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
Riparian Vegetation (Floodplain)	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																			
2. Estimate the % area within each condition category.																			
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																			
Ensure the sum of the % Riparian Area Blocks equal 100																			
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	10%	20%	20%										0.38		
	Score:	14	12	9	7	4	2												
	Total Sub-score:	1.40	2.40	1.80	0.70	0.80	0.40												
Left Side	Condition Category																0.38	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	10%	20%	20%	10%	20%	20%												
	Score:	14	12	9	7	4	2												
	Total Sub-score:	1.40	2.40	1.80	0.70	0.80	0.40												

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1							

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	10%	20%	20%	10%	20%	20%	0.38			
	Score:	14	12	9	7	4	2				
	Total Sub-score:	1.40	2.40	1.80	0.70	0.80	0.40				
Left Side	Condition Category										
	% Riparian Area:	15%	20%	20%	15%	20%	10%	0.42	CI = (Left Side CI + Right Side CI)/2		CI
	Score:	14	12	9	7	4	2				
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20				0.40

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate							Severe																
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.						
						High					Low							High					Low											
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 12					0.60				

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.37

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments:

CI = (Score)/20		CI
SCORE	9	0.45

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7

Area Blocks equal 100		
Side Sub-Index = $\text{SUM}(\% \text{Areas} * \text{Scores}) / 20$		
CI = (Left Side CI + Right Side CI) / 2		CI
		0.40

- Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	15%	15%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.60	0.30			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	15%	15%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	2.10	1.80	1.80	1.40	0.60	0.30			

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3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	15%	15%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.60	0.30			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	15%	15%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	2.10	1.80	1.80	1.40	0.60	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20		CI
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 2		0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			

[illegible]

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3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
											High					Low					High				Low				High			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate							Severe																
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.						
						High					Low							High					Low											
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI				
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 13					0.65				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

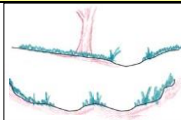
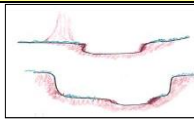
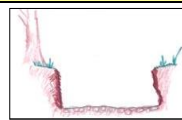
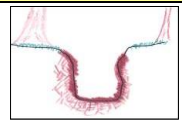
RCI

0.38

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20	CI
SCORE 9	0.45

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
						High	Low	High	Low	High	Low	High	Low							
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.	Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.					
						High					Low								High					Low										
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI				
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 13					0.65				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

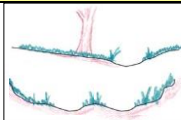
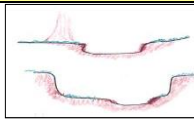
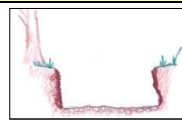
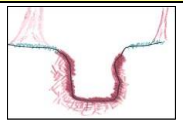
RCI

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20	CI
SCORE 7	0.35

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.	
						High		Low			High			Low		High			Low	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.	Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	20%	20%	15%	20%	10%	0.42		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	20%	20%	15%	20%	10%	0.42	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.42
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1											

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	20%	20%	15%	20%	10%	0.42		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	20%	20%	15%	20%	10%	0.42	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.42
	Total Sub-score:	2.10	2.40	1.80	1.05	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70										

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.40

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			

[illegible]

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
																					CI = (Score)/20					CI						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	69 ft	
Latitude	41.74882	Longitude	-78.328596	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream051; UNT to Walcott Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE80.40															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																				
2. Estimate the % area within each condition category.																				
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																				
Ensure the sum of the % Riparian Area Blocks equal 100																				
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	15%	15%	20%	20%	20%	10%										0.41			
	Score:	14	12	9	7	4	2													
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20													
Left Side	Condition Category																	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	15%	15%	20%	20%	20%	10%													
	Score:	14	12	9	7	4	2													
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20													

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.41
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20		CI
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 2		0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.											RCI = (Sum of all CI's)/5					RCI
																0.40

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/07/17	Designated:	Existing:	60 ft	
Latitude	41.748023	Longitude	-78.327519	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 6 ft, average depth of 1 ft. Temporary impacts to 6.5 ft.			
J. Miner, M. Groomer		Stream052; UNT to Walcott Brook					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE10CI0.50															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																				
2. Estimate the % area within each condition category.																				
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																				
Ensure the sum of the % Riparian Area Blocks equal 100																				
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	15%	15%	15%	15%	20%	20%										0.38			
	Score:	14	12	9	7	4	2													
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40													
Left Side	Condition Category																	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	15%	15%	15%	15%	20%	20%													
	Score:	14	12	9	7	4	2													
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40													

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																					
Riparian ZOI	Optimal Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					Suboptimal					Marginal					Poor																				
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High					Low					High					Low					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1														

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	30%	10%	0.39		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	1.20	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1						
																				CI = (Score)/20					CI							
																									SCORE 14					0.70		

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments:

CI = (Score)/20		CI
SCORE	9	0.45

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
						High		Low		High		Low		High		Low				
						20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	20%	20%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	0.80	0.40			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	30%	10%	0.39	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	2.10	1.80	1.35	1.05	1.20	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate							Severe																
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.						
						High					Low							High					Low											
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 13					0.65				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.38

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		08/03/18	Designated:	Existing:		300 ft
Latitude	41.763862	Longitude	-78.329347	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Perennial stream that crosses maintained ROW and drains into PEM wetland. Average width of approximately 15 ft, average depth of 0.5 ft. Temporary impacts to 8.5 ft.			
J. Miner, M. Groomer		Stream 054; UNT to Skinner Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.			
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.			
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE 20 19 18 17				16 15 14 13				12 11 10 9				8 7 6 5				4 3 2 1			

Comments:																
CI = (Score)/20 SCORE 12 CI 0.60																

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE 20 19 18 17 16				15 14 13 12 11				10 9 8 7 6					5 4 3 2 1											

1. Identify Condition Category areas along the floodplain using the descriptors above.																			
2. Estimate the % area within each condition category.																			
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																			
Ensure the sum of the % Riparian Area Blocks equal 100																			
Right Side	Condition Category																		
	% Riparian Area:	10%	30%	10%	30%	20%	0%										Side Sub-Index = SUM(%Areas*Scores)/20		
	Score:	14	12	9	7	4	0												
	Total Sub-score:	1.40	3.60	0.90	2.10	0.80	0.00												
Left Side	Condition Category																		
	% Riparian Area:	10%	30%	10%	30%	20%	0%										0.44	CI = (Left Side CI + Right Side CI)/2	CI 0.44
	Score:	14	12	9	7	4	0												
	Total Sub-score:	1.40	3.60	0.90	2.10	0.80	0.00												

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
											High					Low					High				Low				High			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	30%	10%	30%	20%	0%	0.44		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	3.60	0.90	2.10	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	10%	30%	10%	30%	20%	0%	0.44	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.44
	Total Sub-score:	1.40	3.60	0.90	2.10	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	10	0.50

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Culverts																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.53

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/02/17	Designated:	Existing:		928 ft
Latitude	41.767016	Longitude	-78.314451	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information			Notes: Runs across maintained pipeline ROW and four PEM wetlands. Average width of approximately 12 ft, average depth of 1.5 ft. Temporary impacts to 20.18 ft.		
T. Malecki, M. Groomer		Stream 055; UNT to Skinner Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.			
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.			
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE	15
	0.75

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE	20	19	18	17	16	15	14	13	12	11	10		9	8	7	6	5	4	3	2	1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.45		
	Score:	14	11	9	7	4	0			
	Total Sub-score:	2.80	2.20	1.80	1.40	0.80	0.00			
Condition Category								0.45	CI = (Left Side CI + Right Side CI)/2	CI
Left Side	% Riparian Area:	20%	20%	20%	20%	20%	0%			
	Score:	14	11	9	7	4	0			
	Total Sub-score:	2.80	2.20	1.80	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream crosses maintained pipeline ROW and four PEM wetlands.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE	20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1					

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.45		
	Score:	14	11	9	7	4	0			
	Total Sub-score:	2.80	2.20	1.80	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.45	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	11	9	7	4	0			0.45
	Total Sub-score:	2.80	2.20	1.80	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream crosses maintained pipeline ROW.																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past altertion, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not					Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.								
						High					Low					High					Low													
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6										5 4 3 2 1			

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

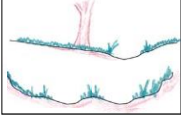
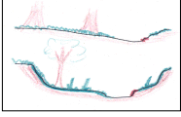
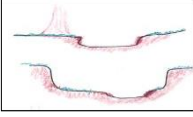
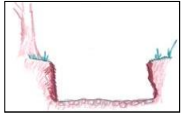
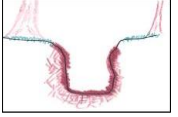
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/02/17	Designated:	Existing:	663 ft	
Latitude	41.766722	Longitude	-78.31354	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Runs across maintained pipeline ROW and two PEM wetlands. Tributary to Stream 055. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 056; UNT to Skinner Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
	 Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.	 Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.	 Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.	 Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.	 Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.
SCORE	20 19 18 17	16 15 14 13	12 11 10 9	8 7 6 5	4 3 2 1

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE	13 0.65

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category												Comments:
	Optimal					Suboptimal		Marginal			Poor		
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
High						Low	High	Low	High	Low			
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1									

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
Right Side	% Riparian Area:	0%	30%	20%	20%	30%	0%			
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	3.60	1.80	1.40	1.20	0.00			
Left Side	% Riparian Area:	0%	30%	20%	20%	30%	0%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	3.60	1.80	1.40	1.20	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream crosses maintained pipeline ROW and two PEM wetlands. Access road within 40 ft.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
											High					Low					High				Low				High			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	20%	20%	25%	15%	0.35		
	Score:	0	12	9	7	4	2			
	Total Sub-score:	0.00	2.40	1.80	1.40	1.00	0.30			
Left Side	Condition Category									
	% Riparian Area:	0%	20%	20%	20%	25%	15%	0.35	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	2			0.35
	Total Sub-score:	0.00	2.40	1.80	1.40	1.00	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
																					CI = (Score)/20		CI
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55

Riverine Assessment Form 1

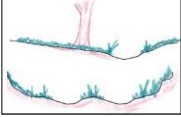
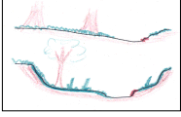
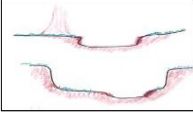
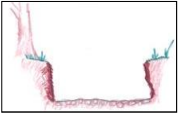
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/02/17	Designated: Existing:		100 ft
Latitude	41.767394	Longitude	-78.31398	FGM Level 1 Channel Classification		A
Evaluator(s)		Stream Name and Information		Notes: Runs across access road and maintained pipeline ROW. Tributary to Stream 055. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.		
T. Malecki, M. Groomer		Stream 057; UNT to Skinner Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category						
	Optimal	Suboptimal	Marginal	Poor	Severe		
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE	10
	0.50

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category						Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20
	% Riparian Area:	0%	20%	20%	20%	20%	20%	
	Score:	0	12	9	7	4	2	
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.40	
Left Side	Condition Category							CI = (Left Side CI + Right Side CI)/2
	% Riparian Area:	0%	20%	20%	20%	20%	20%	
	Score:	0	12	9	7	4	2	
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.40	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																	Comments: Stream crosses maintained pipeline ROW and access road. Tributary to Stream 055.																			
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																				
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
											High					Low					High					Low					High					Low
SCORE		20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1																			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Condition Category								Side Sub-Index		
Right Side	% Riparian Area:	0%	20%	20%	20%	20%	20%	0.34	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	0	12	9	7	4	2			
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.40			
Condition Category										
Left Side	% Riparian Area:	0%	20%	20%	20%	20%	20%	0.34	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	2			0.34
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.40			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream crosses maintained pipeline ROW and access road through culverts.														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55						

RIVERINE CONDITION INDEX (RCI)														RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

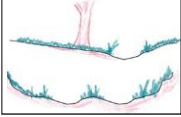
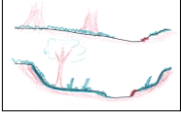
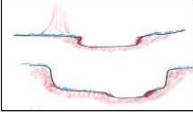
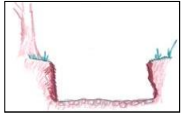
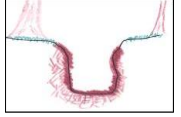
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/02/17	Designated:	Existing:	84 ft
Latitude	41.771402	Longitude	-78.310647	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream058; UNT to Skinner Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	9	0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.														
							SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category							0.40	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	10%	20%	20%	20%	20%	10%			
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
																					CI = (Score)/20					CI						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.38

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

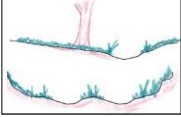
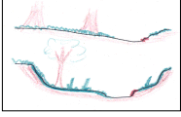
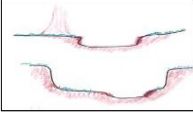
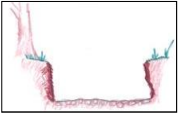
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/02/17	Designated:	Existing:	74 ft
Latitude	41.779992	Longitude	-78.307786	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Runs across access road. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.		
T. Malecki, M. Groomer		Stream 060; UNT to Skinner Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category						
	Optimal	Suboptimal	Marginal	Poor	Severe		
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE	13 0.65

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category						Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	0%	25%	25%		
	Score:	0	12	9	0	4	2		
	Total Sub-score:	0.00	3.00	2.25	0.00	1.00	0.50		
Left Side	Condition Category								
	% Riparian Area:	0%	25%	25%	0%	25%	25%	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	0	4	2		
	Total Sub-score:	0.00	3.00	2.25	0.00	1.00	0.50		

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream crosses access road.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	0%	25%	25%	0.34		
	Score:	0	12	9	0	4	2			
	Total Sub-score:	0.00	3.00	2.25	0.00	1.00	0.50			
Left Side	Condition Category									
	% Riparian Area:	0%	25%	25%	0%	25%	25%	0.34	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	0	4	2			0.34
	Total Sub-score:	0.00	3.00	2.25	0.00	1.00	0.50			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20		CI
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 2		0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream crosses access road through culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

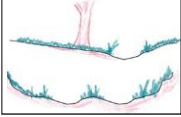
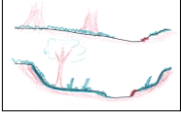
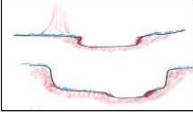
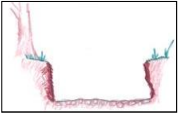
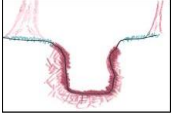
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/02/17	Designated:	Existing:	70 ft
Latitude	41.780928	Longitude	-78.307109	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream061; UNT to Skinner Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:

CI = (Score)/20	CI
SCORE	8
	0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category	Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20							
Right Side	0.40								
Left Side	0.40								
CI = (Left Side CI + Right Side CI)/2	CI								
Condition Category	10%	20%	20%	20%	20%	10%	0.40	0.40	0.40
% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	0.40	0.40
Score:	14	12	9	7	4	2	0.40	0.40	0.40
Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20	0.40	0.40	0.40
Condition Category	10%	20%	20%	20%	20%	10%	0.40	0.40	0.40
% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	0.40	0.40
Score:	14	12	9	7	4	2	0.40	0.40	0.40
Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20	0.40	0.40	0.40

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.40

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

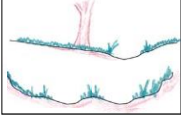
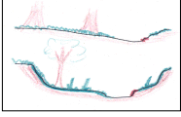
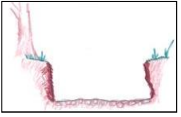
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/02/17	Designated: Existing:		78 ft
Latitude	41.784053	Longitude	-78.307668	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Runs across access road. Average width of approximately 6 ft, average depth of 0.5 ft. Temporary impacts to 6.5 ft.		
T. Malecki, M. Groomer		Stream 062; UNT to Skinner Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.
SCORE	20 19 18 17	16 15 14 13	12 11 10 9	8 7 6 5	4 3 2 1

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE	15 0.75

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category						Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20
	% Riparian Area:	0%	25%	25%	0%	25%	25%	
	Score:	0	12	9	0	4	2	
	Total Sub-score:	0.00	3.00	2.25	0.00	1.00	0.50	
Left Side	Condition Category							CI = (Left Side CI + Right Side CI)/2
	% Riparian Area:	0%	25%	25%	0%	25%	25%	
	Score:	0	12	9	0	4	2	
	Total Sub-score:	0.00	3.00	2.25	0.00	1.00	0.50	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream crosses access road.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	0%	25%	25%	0.34		
	Score:	0	12	9	0	4	2			
	Total Sub-score:	0.00	3.00	2.25	0.00	1.00	0.50			
Left Side	Condition Category									
	% Riparian Area:	0%	25%	25%	0%	25%	25%	0.34	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	0	4	2			0.34
	Total Sub-score:	0.00	3.00	2.25	0.00	1.00	0.50			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	5	0.25

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream crosses access road through culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/02/17	Designated:	Existing:	76 ft	
Latitude	41.784091	Longitude	-78.307806	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream063; UNT to Skinner Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE80.40															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
Riparian Vegetation (Floodplain)	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																				
2. Estimate the % area within each condition category.																				
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																				
Ensure the sum of the % Riparian Area Blocks equal 100																				
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	10%	20%	20%	20%	20%	10%										0.40			
	Score:	14	12	9	7	4	2													
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20													
Left Side	Condition Category																	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	10%	20%	20%	20%	20%	10%													
	Score:	14	12	9	7	4	2													
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20													

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/02/17	Designated:	Existing:	73 ft	
Latitude	41.784189	Longitude	-78.308004	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information			Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream064; UNT to Skinner Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.			
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.			
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE 20 19 18 17				SCORE 16 15 14 13				SCORE 12 11 10 9				SCORE 8 7 6 5				SCORE 4 3 2 1			

Comments:																
CI = (Score)/20 SCORE 8 CI 0.40																

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE 20 19 18 17 16				SCORE 15 14 13 12 11				SCORE 10 9 8 7 6					SCORE 5 4 3 2 1											

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category							0.40	CI = (Left Side CI + Right Side CI)/2	CI 0.40
	% Riparian Area:	10%	20%	20%	20%	20%	10%			
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	20%	20%	20%	20%	0.35		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.40			
Condition Category										
Left Side	% Riparian Area:	10%	10%	20%	20%	20%	20%	0.35	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.35
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.40			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1						
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI		
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 13					0.65		

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.38

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.							Ensure the sum of the % Riparian Area Blocks equal 100			
Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	30%	30%	20%	20%	0%	0%	0.52		
	Score:	14	12	9	4	0	0			
	Total Sub-score:	4.20	3.60	1.80	0.80	0.00	0.00			
Condition Category										
Left Side	% Riparian Area:	30%	30%	20%	20%	0%	0%	0.52	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	4	0	0			0.52
	Total Sub-score:	4.20	3.60	1.80	0.80	0.00	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream crosses maintained pipeline ROW.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	30%	30%	20%	20%	0%	0%	0.52		
	Score:	14	12	9	4	0	0			
	Total Sub-score:	4.20	3.60	1.80	0.80	0.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	30%	30%	20%	20%	0%	0%	0.52	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	4	0	0			0.52
	Total Sub-score:	4.20	3.60	1.80	0.80	0.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal								Poor				
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

Riverine Assessment Form 1

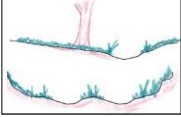
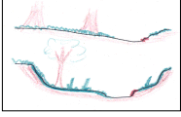
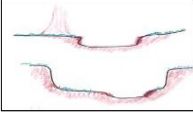
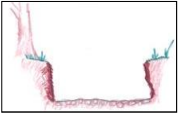
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/05/17	Designated:	Existing:	516 ft	
Latitude	41.78862	Longitude	-78.270035	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Runs across railroad and road. Drains PEM wetland and connects to Ditch 011. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 067; UNT to Portage Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category						
	Optimal	Suboptimal	Marginal	Poor	Severe		
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments: Banks are heavily vegetated.

CI = (Score)/20	CI
SCORE	14
	0.70

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category				Comments:	
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
Right Side	% Riparian Area:	10%	20%	20%	20%	0%	30%		0.37	
	Score:	14	12	9	7	0	1			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.00	0.30			
Condition Category										
Left Side	% Riparian Area:	10%	20%	20%	20%	0%	30%	0.37	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	0	1			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.00	0.30			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Stream crosses railroad and road. Drains PEM wetland and connects to ditch.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	0%	30%	0.37		
	Score:	14	12	9	7	0	1			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.00	0.30			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	0%	30%	0.37	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	0	1			0.37
	Total Sub-score:	1.40	2.40	1.80	1.40	0.00	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Stream crosses railroad and road through four culverts.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							
SCORE					11					0.55																							

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

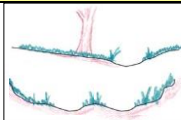
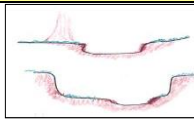
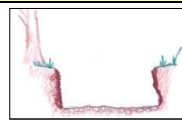
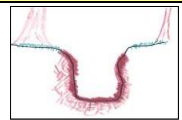
RCI

0.42

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

1. Identify Condition Category areas along the floodplain using the descriptors above.
2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.	Ensure the sum of the % Riparian Area Blocks equal 100

[illegible]

	% Riparian Area:	0%	30%	0%	20%	50%	0%	

Right Side	Score:	0	12	0	7	4	0	0.35	Side Sub-Index = SUM(%Areas*Scores)/20	
	Total Sub-score:	0.00	3.60	0.00	1.40	2.00	0.00			
	Condition Category									
Left Side	% Riparian Area:	0%	30%	0%	20%	50%	0%	0.35	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	0	7	4	0			0.35
	Total Sub-score:	0.00	3.60	0.00	1.40	2.00	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Residential development within 70 ft. Mowed areas for residential and agricultural pasture. Tree canopy cover over 60% of stream but has maintained understory.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1											

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	10%	0%	10%	50%	30%	0.21		
	Score:	0	12	0	7	4	1			
	Total Sub-score:	0.00	1.20	0.00	0.70	2.00	0.30			
Left Side	Condition Category									
	% Riparian Area:	0%	10%	0%	10%	50%	30%	0.21	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	0	7	4	1			0.21
	Total Sub-score:	0.00	1.20	0.00	0.70	2.00	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.36

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

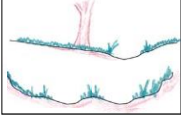
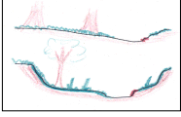
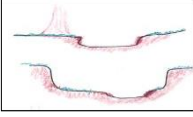
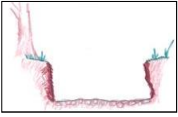
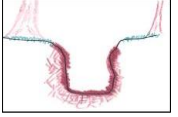
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

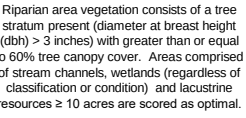
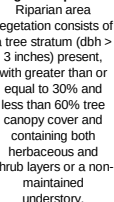
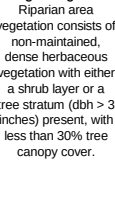
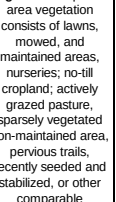
Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/05/17	Designated: Existing:		380 ft
Latitude	41.790907	Longitude	-78.265926	FGM Level 1 Channel Classification	B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and PEM wetlands. Average width of approximately 6 ft, average depth of 0.5 ft. Temporary impacts to 6.5 ft.		
J. Miner, M. Groomer		Stream 070; UNT to Portage Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
 Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.	 Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.	 Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.	 Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.	 Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.	
					SCORE

Comments:	CI = (Score)/20	CI
	SCORE	9 0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category				Comments:
	Optimal	Suboptimal	Marginal	Poor	
 Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	 High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	 High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover. Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	 High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition. Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
				SCORE	20 19 18 17 16

1. Identify Condition Category areas along the floodplain using the descriptors above.							
2. Estimate the % area within each condition category.							
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.							
Ensure the sum of the % Riparian Area Blocks equal 100							
Right Side	Condition Category						Side Sub-Index
	% Riparian Area:	15%	30%	15%	20%	20%	0%
	Score:	14	12	9	7	4	0
	Total Sub-score:	2.10	3.60	1.35	1.40	0.80	0.00
Left Side	Condition Category						
	% Riparian Area:	15%	30%	15%	20%	20%	0%
	Score:	14	12	9	7	4	0
	Total Sub-score:	2.10	3.60	1.35	1.40	0.80	0.00
CI = (Left Side CI + Right Side CI)/2							CI
0.46							0.46

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																		
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High				Low				High				Low					
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1				

Riverine Assessment Form 1

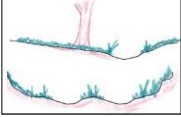
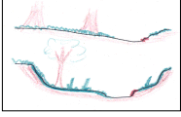
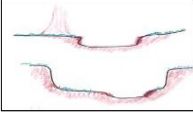
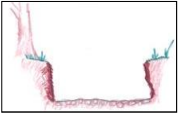
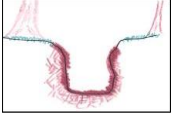
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/05/17	Designated: Existing:		310 ft
Latitude	41.792402	Longitude	-78.263895	FGM Level 1 Channel Classification		A
Evaluator(s)		Stream Name and Information		Notes: Ephemeral stream that drains PEM wetland. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream 071; UNT to Allegheny River				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20	CI
	SCORE	8

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.														
							High	Low	High	Low	High	Low								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.									
2. Estimate the % area within each condition category.									
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.									
Ensure the sum of the % Riparian Area Blocks equal 100									
Right Side	Condition Category								Side Sub-Index
	% Riparian Area:	10%	40%	10%	40%	0%	0%		0.50
	Score:	14	12	9	7	0	0		
	Total Sub-score:	1.40	4.80	0.90	2.80	0.00	0.00		
Left Side	Condition Category								0.50
	% Riparian Area:	10%	40%	10%	40%	0%	0%		
	Score:	14	12	9	7	0	0		
	Total Sub-score:	1.40	4.80	0.90	2.80	0.00	0.00		
CI = (Left Side CI + Right Side CI)/2								CI	
								0.50	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																		
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High					Low					High				Low				High				Low					
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1				

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	40%	10%	40%	0%	0%	0.50		
	Score:	14	12	9	7	0	0			
	Total Sub-score:	1.40	4.80	0.90	2.80	0.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	10%	40%	10%	40%	0%	0%	0.50	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	0	0			0.50
	Total Sub-score:	1.40	4.80	0.90	2.80	0.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																							
	Negligible					Minor					Moderate							Severe																					
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.											
						High					Low							High					Low																
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1													
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI									
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE					16					0.80				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	10%	10%	40%	0%	0.35		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	2.40	0.90	0.70	1.60	0.00			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	10%	10%	40%	0%	0.35	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	2.40	0.90	0.70	1.60	0.00			0.35

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	10%	10%	40%	0%	0.35		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	2.40	0.90	0.70	1.60	0.00			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	10%	10%	40%	0%	0.35	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.35
	Total Sub-score:	1.40	2.40	0.90	0.70	1.60	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

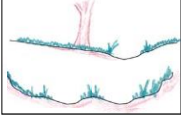
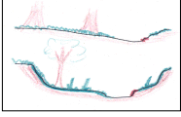
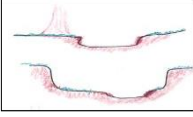
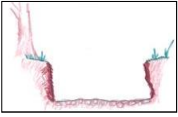
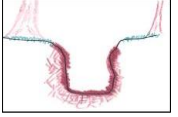
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

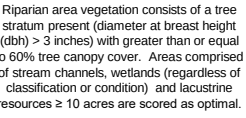
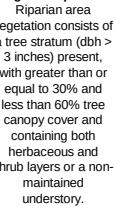
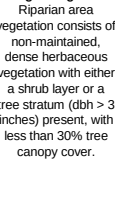
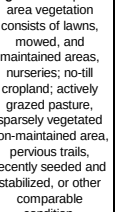
Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/05/17	Designated: Existing:		289 ft
Latitude	41.79402	Longitude	-78.261942	FGM Level 1 Channel Classification		A
Evaluator(s)		Stream Name and Information		Notes: Ephemeral stream with average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream 074; UNT to Allegheny River				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
 Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.	 Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.	 Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.	 Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.	 Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.	
					SCORE

Comments:	CI = (Score)/20	CI
	SCORE	9 0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
 Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	 High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	 High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover. Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	 High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition. Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
				SCORE	20 19 18 17 16	15 14 13 12 11

1. Identify Condition Category areas along the floodplain using the descriptors above.							
2. Estimate the % area within each condition category.							
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.							
Ensure the sum of the % Riparian Area Blocks equal 100							
Right Side	Condition Category						Side Sub-Index
	% Riparian Area:	15%	30%	20%	30%	5%	0%
	Score:	14	12	9	7	4	0
	Total Sub-score:	2.10	3.60	1.80	2.10	0.20	0.00
Left Side	Condition Category						
	% Riparian Area:	15%	30%	20%	30%	5%	0%
	Score:	14	12	9	7	4	0
	Total Sub-score:	2.10	3.60	1.80	2.10	0.20	0.00
Side Sub-Index = SUM(%Areas*Scores)/20							0.49
CI = (Left Side CI + Right Side CI)/2							0.49

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	30%	20%	30%	5%	0%	0.49		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.10	3.60	1.80	2.10	0.20	0.00			
Left Side	Condition Category									
	% Riparian Area:	15%	30%	20%	30%	5%	0%	0.49	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.49
	Total Sub-score:	2.10	3.60	1.80	2.10	0.20	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.46

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project		10/05/17	Designated:	Existing:		268 ft	
Latitude	41.794212	Longitude	-78.261777	FGM Level 1 Channel Classification		B		
Evaluator(s)		Stream Name and Information			Notes: Intermittent stream with average width of approximately 2 ft, average depth of 0.5 ft. Temporary impacts to 2 ft.			
J. Miner, M. Groomer		Stream 075; UNT to Allegheny River						

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:	
CI = (Score)/20	
SCORE	9
0.45	

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category															Comments:														
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
					High				Low				High				Low				High				Low				
					SCORE	20	19	18	17	16	15	14	13	12		11	10	9	8	7	6	5	4	3	2	1			

1. Identify Condition Category areas along the floodplain using the descriptors above.																										
2. Estimate the % area within each condition category.																										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																										
Ensure the sum of the % Riparian Area Blocks equal 100																										
Condition Category																		Side Sub-Index		Side Sub-Index = SUM(%Areas*Scores)/20						
Right Side	% Riparian Area:	20%				30%				20%				30%				0%				0%				
	Score:	14				12				9				7				0				0				
	Total Sub-score:	2.80				3.60				1.80				2.10				0.00				0.00				
Condition Category																								0.52	CI = (Left Side CI + Right Side CI)/2	CI
Left Side	% Riparian Area:	20%				30%				20%				30%				0%				0%				
	Score:	14				12				9				7				0				0				
	Total Sub-score:	2.80				3.60				1.80				2.10				0.00				0.00				

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	30%	20%	30%	0%	0%	0.52		
	Score:	14	12	9	7	0	0			
	Total Sub-score:	2.80	3.60	1.80	2.10	0.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	30%	20%	30%	0%	0%	0.52	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	0	0			0.52
	Total Sub-score:	2.80	3.60	1.80	2.10	0.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

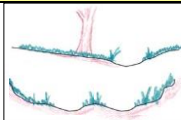
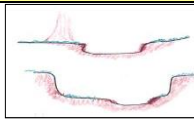
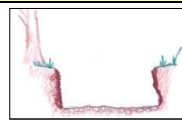
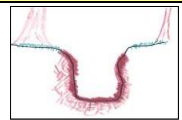
RCI

0.47

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

CI = (Score)/20		CI
SCORE	13	0.65

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
						High		Low		High		Low		High		Low				
						20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46			
	Score:	14	12	9	7	4	0				
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00				
Left Side	Condition Category										
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI	
	Score:	14	12	9	7	4	0			0.46	
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00				

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1							

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	10%	25%	15%	0.38		
	Score:	14	12	9	7	4	1			
	Total Sub-score:	2.10	1.80	1.80	0.70	1.00	0.15			
Left Side	Condition Category									
	% Riparian Area:	20%	20%	20%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.42
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate							Severe																
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.						
						High					Low							High					Low											
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI				
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 15					0.75				

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.59

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	0%	80%	20%	0%	0.32		
	Score:	0	0	0	7	4	0			
	Total Sub-score:	0.00	0.00	0.00	5.60	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	0%	0%	80%	20%	0%	0.32	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	0	7	4	0			0.32
	Total Sub-score:	0.00	0.00	0.00	5.60	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Condition Category								Side Sub-Index		
Right Side	% Riparian Area:	0%	0%	0%	80%	20%	0%	0.32	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	0	0	0	7	4	0			
	Total Sub-score:	0.00	0.00	0.00	5.60	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	0%	0%	80%	20%	0%	0.32	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	0	7	4	0			0.32
	Total Sub-score:	0.00	0.00	0.00	5.60	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal								Poor				
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	5

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

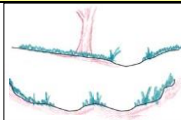
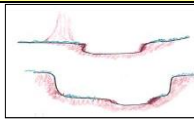
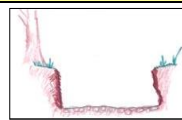
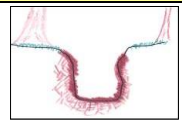
RCI

0.43

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																				
		Optimal				Suboptimal				Marginal				Poor				Severe				
Channel / Floodplain																						
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.				
	SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20	CI
SCORE 8	0.40

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
						High		Low		High		Low		High		Low				
						20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1										

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	20%	20%	20%	10%	0.34		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	20%	20%	20%	10%	0.34	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.34
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1						
					CI = (Score)/20					SCORE					14					0.70												

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		09/30/17	Designated:	Existing:		105 ft
Latitude	41.810254	Longitude	-78.233731	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 7.5 ft, average depth of 0.5 ft. Temporary impacts to 10 ft.			
J. Miner, M. Groomer		Stream081; UNT to Allegheny River					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.			
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.			
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE 20 19 18 17				16 15 14 13				12 11 10 9				8 7 6 5				4 3 2 1			

Comments:																
	CI = (Score)/20															
	SCORE 8 0.40															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE 20 19 18 17 16				15 14 13 12 11				10 9 8 7 6					5 4 3 2 1											

1. Identify Condition Category areas along the floodplain using the descriptors above.																
2. Estimate the % area within each condition category.																
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																
Ensure the sum of the % Riparian Area Blocks equal 100																
Right Side	Condition Category															
	% Riparian Area:	10%	20%	20%	20%	20%	10%	Side Sub-Index = SUM(%Areas*Scores)/20								
	Score:	14	12	9	7	4	2									
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20									
Left Side	Condition Category															
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2		CI					
	Score:	14	12	9	7	4	2									
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20									

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1							

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	20%	20%	20%	10%	0.34		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	20%	20%	20%	10%	0.34	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.34
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
																					CI = (Score)/20		CI
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.					
						High					Low								High					Low										
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI				
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 14					0.70				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments:

CI = (Score)/20	CI
SCORE 8	0.40

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor																			
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understorey.					Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understorey.					High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained					High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High					Low					High					Low				
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

Area Blocks equal 100	
	Side Sub-Index = $\text{SUM}(\% \text{Areas} * \text{Scores}) / 20$

- | |
|--|
| Ensure the sum of the % Riparian Area Blocks equal 100 |
|--|

Enter the % Riparian Area in each of the seven categories in the table below:								Enter the same data for the % Riparian Area in each of the seven categories in the table below:		
Right Side	Condition Category							0.35	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	20%	20%	20%	20%			
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.40			
Left Side	Condition Category							0.35	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	10%	10%	20%	20%	20%	20%			
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.80	1.40	0.80	0.40			
0.35										

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.41
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20		CI
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 2		0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

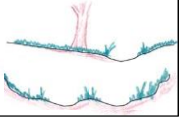
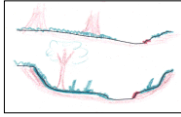
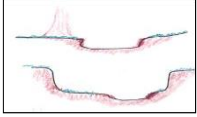
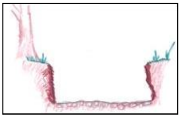
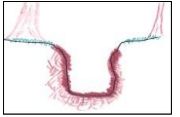
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		09/30/17	Designated: Existing:		72 ft
Latitude	41.809982	Longitude	-78.220913	FGM Level 1 Channel Classification	B	
Evaluator(s)		Stream Name and Information			Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.	
J. Miner, M. Groomer		Stream083; UNT to Coleman Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
	 Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.	 Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.	 Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.	 Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.	 Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.
SCORE	20 19 18 17	16 15 14 13	12 11 10 9	8 7 6 5	4 3 2 1

Comments:	CI = (Score)/20	CI
	SCORE 8	0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category				Comments:		
	Optimal	Suboptimal	Marginal	Poor			
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.
		High	Low	High	Low	High	Low
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.								
2. Estimate the % area within each condition category.								
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.								
Ensure the sum of the % Riparian Area Blocks equal 100								
Right Side	Condition Category						Side Sub-Index	
	% Riparian Area:	10%	15%	20%	20%	20%	15%	
	Score:	14	12	9	7	4	2	
	Total Sub-score:	1.40	1.80	1.80	1.40	0.80	0.30	
Left Side	Condition Category						0.38	
	% Riparian Area:	10%	15%	20%	20%	20%		15%
	Score:	14	12	9	7	4		2
	Total Sub-score:	1.40	1.80	1.80	1.40	0.80		0.30
CI = (Left Side CI + Right Side CI)/2							CI	
							0.38	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.41
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							
																				CI = (Score)/20					CI								
																									SCORE 14					0.70			

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.40

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

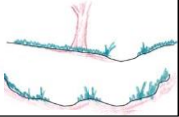
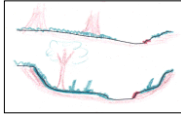
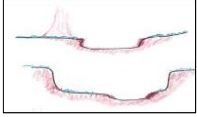
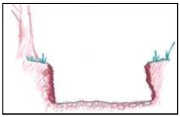
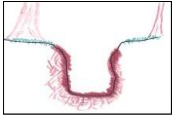
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		09/30/17	Designated: Existing:		67 ft
Latitude	41.813511	Longitude	-78.218903	FGM Level 1 Channel Classification	A	
Evaluator(s)		Stream Name and Information		Notes: Ephemeral stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream084; UNT to Coleman Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
	 Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.	 Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.	 Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.	 Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.	 Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.
SCORE	20 19 18 17	16 15 14 13	12 11 10 9	8 7 6 5	4 3 2 1

Comments:	CI = (Score)/20	CI
	SCORE	8 0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover. Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition. Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
	High Low	High Low	High Low	High Low		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		

1. Identify Condition Category areas along the floodplain using the descriptors above.								
2. Estimate the % area within each condition category.								
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.								
Ensure the sum of the % Riparian Area Blocks equal 100								
Right Side	Condition Category						Side Sub-Index	
	% Riparian Area:	10%	15%	20%	20%	20%	15%	
	Score:	14	12	9	7	4	2	
	Total Sub-score:	1.40	1.80	1.80	1.40	0.80	0.30	
Left Side	Condition Category						0.38	
	% Riparian Area:	10%	15%	20%	20%	20%		15%
	Score:	14	12	9	7	4		2
	Total Sub-score:	1.40	1.80	1.80	1.40	0.80		0.30
CI = (Left Side CI + Right Side CI)/2							CI	
							0.38	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.41
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							
					CI = (Score)/20					SCORE					14					0.70													

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments:

CI = (Score)/20		CI
SCORE	8	0.40

Condition Category	Comments:

	Optimal	Suboptimal	Marginal		Poor		
		High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20
Right Side	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	
	Score:	14	12	9	7	4	2		
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20		

	Condition Category									
Left Side	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
											High					Low					High				Low				High			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.41
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1						
					CI = (Score)/20					SCORE					14					0.70												

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

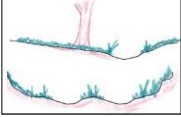
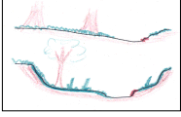
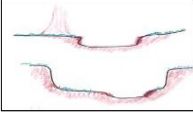
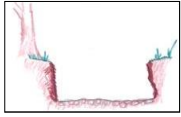
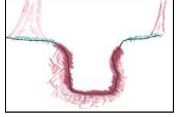
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		09/30/17	Designated:	Existing:		101 ft
Latitude	41.817434	Longitude	-78.208476	FGM Level 1 Channel Classification		A	
Evaluator(s)		Stream Name and Information			Notes: Ephemeral stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream085A; UNT to Coleman Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	8	0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.														
							High	Low	High	Low	High	Low								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category								Side Sub-Index	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	14	12	9	7	4	2			
Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20				
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			
Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20				

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.41
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI			
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE					14		0.70	

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

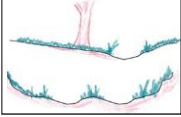
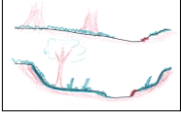
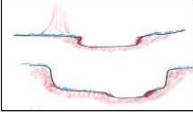
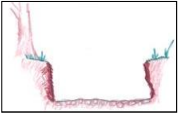
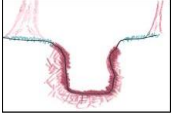
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		09/30/17	Designated:	Existing:	96 ft
Latitude	41.815817	Longitude	-78.209223	FGM Level 1 Channel Classification		A
Evaluator(s)		Stream Name and Information		Notes: Ephemeral stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream085B; UNT to Coleman Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
	 Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.	 Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.	 Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.	 Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.	 Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.
SCORE	20 19 18 17	16 15 14 13	12 11 10 9	8 7 6 5	4 3 2 1

Comments:	CI = (Score)/20	CI
	SCORE	8 0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover. Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition. Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		

1. Identify Condition Category areas along the floodplain using the descriptors above.								
2. Estimate the % area within each condition category.								
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.								
Ensure the sum of the % Riparian Area Blocks equal 100								
Right Side	Condition Category						Side Sub-Index	
	% Riparian Area:	10%	20%	20%	20%	20%	0.40	
	Score:	14	12	9	7	4		2
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20	
Left Side	Condition Category						0.40	
	% Riparian Area:	10%	20%	20%	20%	20%		CI = (Left Side CI + Right Side CI)/2
	Score:	14	12	9	7	4	2	
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20	0.40

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.41
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	14	0.70									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		09/30/17	Designated:	Existing:	92 ft	
Latitude	41.813936	Longitude	-78.208987	FGM Level 1 Channel Classification		A	
Evaluator(s)		Stream Name and Information		Notes: Ephemeral stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream085C; UNT to Coleman Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE80.40															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
Riparian Vegetation (Floodplain)	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																				
2. Estimate the % area within each condition category.																				
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																				
Ensure the sum of the % Riparian Area Blocks equal 100																				
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	10%	20%	20%	20%	20%	10%										0.40			
	Score:	14	12	9	7	4	2													
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20													
Left Side	Condition Category																	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	10%	20%	20%	20%	20%	10%													
	Score:	14	12	9	7	4	2													
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20													

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	20%	20%	20%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.41
	Total Sub-score:	2.10	1.80	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																							
	Negligible					Minor					Moderate								Severe																				
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.										
						High					Low								High					Low															
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1													
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE					14					0.70				

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

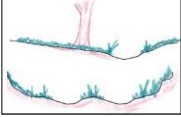
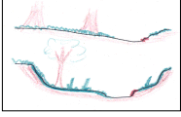
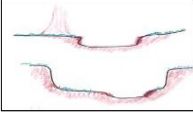
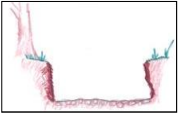
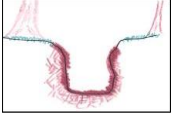
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		09/30/17	Designated:	Existing:		378 ft
Latitude	41.81031	Longitude	-78.205458	FGM Level 1 Channel Classification		A	
Evaluator(s)		Stream Name and Information			Notes: Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.		
T. Malecki, M. Groomer		Stream 086; UNT to Coleman Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor			Severe				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	8	0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category												Comments: Runs through maintained pipeline ROW and access road.							
	Optimal				Suboptimal		Marginal		Poor											
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.														
							High	Low	High	Low	High	Low								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.											
2. Estimate the % area within each condition category.											
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.											
Ensure the sum of the % Riparian Area Blocks equal 100											
Right Side	Condition Category								Side Sub-Index		
	% Riparian Area:	0%	40%	0%	40%	10%	10%		0.41		
	Score:	0	12	0	7	4	1				
	Total Sub-score:	0.00	4.80	0.00	2.80	0.40	0.10				
Left Side	Condition Category								0.41		
	% Riparian Area:	0%	40%	0%	40%	10%	10%				
	Score:	0	12	0	7	4	1				
	Total Sub-score:	0.00	4.80	0.00	2.80	0.40	0.10	CI = (Left Side CI + Right Side CI)/2		CI	
										0.41	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Runs through maintained pipeline ROW and access road.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE	20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1					

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	40%	0%	40%	10%	10%	0.41		
	Score:	0	12	0	7	4	1			
	Total Sub-score:	0.00	4.80	0.00	2.80	0.40	0.10			
Left Side	Condition Category									
	% Riparian Area:	0%	40%	0%	40%	10%	10%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	0	7	4	1			0.41
	Total Sub-score:	0.00	4.80	0.00	2.80	0.40	0.10			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		09/30/17	Designated:	Existing:		211 ft
Latitude	41.811018	Longitude	-78.205297	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Tributary of Stream 090. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 089; UNT to Sartwell Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																						
	Optimal				Suboptimal				Marginal				Poor				Severe						
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.						
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and bankfull benches may be present; 4) bankfull benches may be present; 5) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 6) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.						
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.						
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments:																									
																						CI = (Score)/20		CI	
SCORE																						9		0.45	

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments: Runs through maintained pipeline ROW												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE				20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.																
2. Estimate the % area within each condition category.																
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																
Ensure the sum of the % Riparian Area Blocks equal 100																
Condition Category												Side Sub-Index		Side Sub-Index = SUM(%Areas*Scores)/20		
Right Side	% Riparian Area:	0%	30%	0%	30%	40%	0%						0.37			
	Score:	0	12	0	7	4	0									
	Total Sub-score:	0.00	3.60	0.00	2.10	1.60	0.00									
Condition Category														0.37	CI = (Left Side CI + Right Side CI)/2	CI
Left Side	% Riparian Area:	0%	30%	0%	30%	40%	0%									
	Score:	0	12	0	7	4	0									
	Total Sub-score:	0.00	3.60	0.00	2.10	1.60	0.00									

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments: Runs through maintained pipeline ROW and access road.																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	0%	25%	50%	0%	0.34		
	Score:	0	12	0	7	4	0			
	Total Sub-score:	0.00	3.00	0.00	1.75	2.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	25%	0%	25%	50%	0%	0.34	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	0	7	4	0			0.34
	Total Sub-score:	0.00	3.00	0.00	1.75	2.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Runs through maintained pipeline ROW																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.					
						High					Low								High					Low										
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								SCORE 16

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

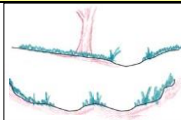
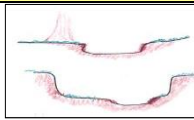
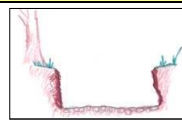
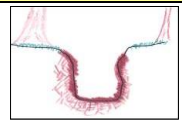
RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

CI = (Score)/20	CI
SCORE 14	0.70

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						High		Low		High		Low		High		Low				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	30%	0%	30%	20%	0%	0.47		
	Score:	14	12	0	7	4	0			
	Total Sub-score:	2.80	3.60	0.00	2.10	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	30%	0%	30%	20%	0%	0.47	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	0	7	4	0			0.47
	Total Sub-score:	2.80	3.60	0.00	2.10	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
											High					Low					High				Low				High			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	30%	0%	30%	20%	0%	0.47		
	Score:	14	12	0	7	4	0			
	Total Sub-score:	2.80	3.60	0.00	2.10	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	30%	0%	30%	20%	0%	0.47	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	0	7	4	0			0.47
	Total Sub-score:	2.80	3.60	0.00	2.10	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	8	0.40

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Runs through maintained pipeline ROW																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1							

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.59

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

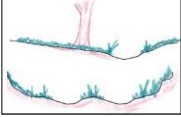
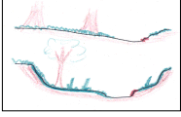
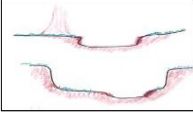
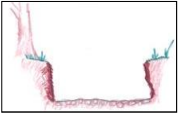
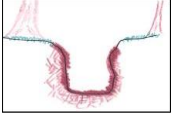
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		09/30/17	Designated:	Existing:	81 ft	
Latitude	41.811189	Longitude	-78.2052	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Tributary of Stream 090 and drains into PEM wetland. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 091; UNT to Sartwell Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	12	0.60

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.											
2. Estimate the % area within each condition category.											
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.											
Ensure the sum of the % Riparian Area Blocks equal 100											
Right Side	Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	30%	0%	30%	20%	0%		0.47		
	Score:	14	12	0	7	4	0				
	Total Sub-score:	2.80	3.60	0.00	2.10	0.80	0.00				
Left Side	Condition Category								0.47	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	20%	30%	0%	30%	20%	0%				
	Score:	14	12	0	7	4	0				
	Total Sub-score:	2.80	3.60	0.00	2.10	0.80	0.00				

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE	20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1					

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	30%	0%	30%	20%	0%	0.47		
	Score:	14	12	0	7	4	0			
	Total Sub-score:	2.80	3.60	0.00	2.10	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	30%	0%	30%	20%	0%	0.47	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	0	7	4	0			0.47
	Total Sub-score:	2.80	3.60	0.00	2.10	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal								Poor				
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	5

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Runs through maintained pipeline ROW														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	17	0.85						

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.53

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

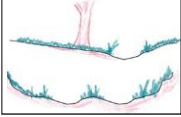
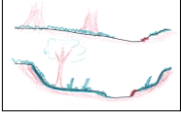
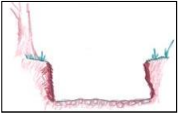
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/09/17	Designated: Existing:		1325 ft
Latitude	41.818143	Longitude	-78.194359	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Connected to two PEM wetlands. Average width of approximately 15 ft, average depth of 1 ft. Temporary impacts to 37.74 ft.		
T. Malecki, M. Groomer		Stream 093; UNT to Sartwell Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category				
	Optimal	Suboptimal	Marginal	Poor	Severe
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.
SCORE	20 19 18 17	16 15 14 13	12 11 10 9	8 7 6 5	4 3 2 1

Comments:	CI = (Score)/20	CI
	SCORE 16	0.80

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category				Comments:	
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		

1. Identify Condition Category areas along the floodplain using the descriptors above.							
2. Estimate the % area within each condition category.							
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.							
Ensure the sum of the % Riparian Area Blocks equal 100							
Right Side	Condition Category					Side Sub-Index	
	% Riparian Area:	0%	15%	15%	50%	20%	0%
	Score:	0	12	9	7	4	0
	Total Sub-score:	0.00	1.80	1.35	3.50	0.80	0.00
Left Side	Condition Category						
	% Riparian Area:	0%	15%	15%	50%	20%	0%
	Score:	0	12	9	7	4	0
	Total Sub-score:	0.00	1.80	1.35	3.50	0.80	0.00
0.37						CI = (Left Side CI + Right Side CI)/2	CI
0.37						0.37	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	15%	15%	20%	50%	0%	0.33		
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	1.80	1.35	1.40	2.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	15%	15%	20%	50%	0%	0.33	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	0			0.33
	Total Sub-score:	0.00	1.80	1.35	1.40	2.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	7	0.35

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Three culverts on stream																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.					
						High					Low								High					Low										
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								SCORE 13

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

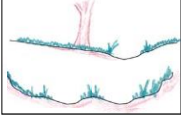
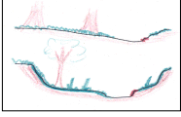
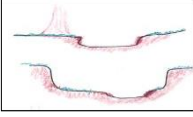
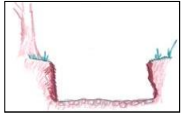
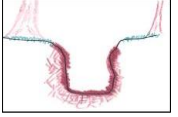
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/09/17	Designated:	Existing:	755 ft	
Latitude	41.82	Longitude	-78.192737	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Connected to PEM wetland. Average width of approximately 15 ft, average depth of 0.5 ft. Temporary impacts to 27.98 ft.			
T. Malecki, M. Groomer		Stream 094; UNT to Sartwell Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
CI = (Score)/20 SCORE10CI0.50																

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
Riparian Vegetation (Floodplain)	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																			
2. Estimate the % area within each condition category.																			
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																			
Ensure the sum of the % Riparian Area Blocks equal 100																			
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%		0%		0%		20%		80%		0%					0.23		
	Score:	0		0		0		7		4		0							
	Total Sub-score:	0.00		0.00		0.00		1.40		3.20		0.00							
Left Side	Condition Category																0.23	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	0%		0%		0%		20%		80%		0%							
	Score:	0		0		0		7		4		0							
	Total Sub-score:	0.00		0.00		0.00		1.40		3.20		0.00							

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	0%	20%	80%	0%	0.23		
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	0.00	0.00	1.40	3.20	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	0%	0%	20%	80%	0%	0.23	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	0			0.23
	Total Sub-score:	0.00	0.00	0.00	1.40	3.20	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Two culverts on stream and runs through agricultural pasture.																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.					
						High					Low								High					Low										
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								SCORE 10

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	0%	50%	50%	0%	0.28		
	Score:	0	0	0	7	4	0			
	Total Sub-score:	0.00	0.00	0.00	3.50	2.00	0.00			
	Condition Category									
Left Side	% Riparian Area:	0%	0%	0%	10%	90%	0%	0.22	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	0	7	4	0			0.25
	Total Sub-score:	0.00	0.00	0.00	0.70	3.60	0.00			

[illegible]

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1										

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	0%	30%	70%	0%	0.25		
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	0.00	0.00	2.10	2.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	0%	0%	10%	90%	0%	0.22	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	0			0.23
	Total Sub-score:	0.00	0.00	0.00	0.70	3.60	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Runs through agricultural pasture.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.44

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	0%	50%	50%	0%	0.28		
	Score:	0	0	0	7	4	0			
	Total Sub-score:	0.00	0.00	0.00	3.50	2.00	0.00			
Condition Category										
Left Side	% Riparian Area:	0%	0%	0%	50%	50%	0%	0.28	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	0	7	4	0			0.28
	Total Sub-score:	0.00	0.00	0.00	3.50	2.00	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	0%	40%	60%	0%	0.26		
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	0.00	0.00	2.80	2.40	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	0%	0%	40%	60%	0%	0.26	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	0			0.26
	Total Sub-score:	0.00	0.00	0.00	2.80	2.40	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Surrounded by agricultural pasture.																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

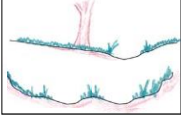
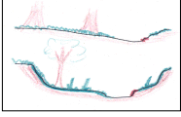
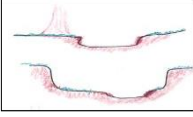
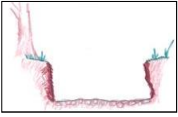
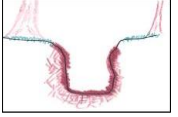
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		10/11/17	Designated:	Existing:		405 ft
Latitude	41.837293	Longitude	-78.1495	FGM Level 1 Channel Classification			B
Evaluator(s)		Stream Name and Information			Notes: Perennial stream that crosses maintained ROW. Average width of approximately 20 ft, average depth of 1 ft. Temporary impacts to 21.5 ft.		
J. Miner, M. Groomer		Stream099; UNT to Fishing Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE	16
	0.80

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	15%	30%	15%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.10	3.60	1.35	1.40	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	15%	30%	15%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.10	3.60	1.35	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	30%	15%	20%	20%	0%	0.46		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.10	3.60	1.35	1.40	0.80	0.00			
Left Side	Condition Category									
	% Riparian Area:	15%	30%	15%	20%	20%	0%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.46
	Total Sub-score:	2.10	3.60	1.35	1.40	0.80	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.66

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name		Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project			10/03/17	Designated:	Existing:		247 ft	
Latitude	41.845102	Longitude	-78.044432	FGM Level 1 Channel Classification			A		
Evaluator(s)		Stream Name and Information			Notes: Ephemeral stream that crosses maintained ROW. Average width of approximately 4 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.				
T. Malecki, M. Groomer		Stream102; UNT to Whitney Creek							

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 2) stable point bars and bankfull benches may be present; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments:												
											CI = (Score)/20	
											SCORE	9
												0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal			
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.	
					High		Low		High		Low	
					High		Low		High		Low	
	SCORE	20	19	18	17	16	15	14	13	12	11	10

1. Identify Condition Category areas along the floodplain using the descriptors above.												
2. Estimate the % area within each condition category.												
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.												
Right Side	Condition Category											Side Sub-Index
	% Riparian Area:	20%		25%		20%		25%		10%		0%
	Score:	14		12		9		7		4		0
	Total Sub-score:	2.80		3.00		1.80		1.75		0.40		0.00
Left Side	Condition Category											
	% Riparian Area:	20%		25%		20%		25%		10%		0%
	Score:	14		12		9		7		4		0
	Total Sub-score:	2.80		3.00		1.80		1.75		0.40		0.00
											Side Sub-Index = SUM(%Areas*Scores)/20	
											CI = (Left Side CI + Right Side CI)/2	
											0.49	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category													Comments:									
Optimal					Suboptimal			Marginal			Poor											
Riparian ZOI	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained.	High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.											
						High	Low	High	Low	High	Low											
						SCORE	20	19	18	17	16			15	14	13	12	11	10	9	8	7
1. Identify Condition Category areas along the floodplain using the descriptors above.																						
2. Estimate the % area within each condition category.																						
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.													Ensure the sums of % Riparian ZOI Blocks equal 100									
Right Side		Condition Category																0.49		Side Sub-Index = SUM(%Areas*Scores)/20		
		% Riparian Area:		20%	25%	20%	25%	10%	0%													
		Score:		14	12	9	7	4	0													
		Total Sub-score:		2.80	3.00	1.80	1.75	0.40	0.00													
Left Side		Condition Category																0.49		CI = (Left Side CI + Right Side CI)/2		CI
		% Riparian Area:		20%	25%	20%	25%	10%	0%													
		Score:		14	12	9	7	4	0													
		Total Sub-score:		2.80	3.00	1.80	1.75	0.40	0.00	0.49												

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Condition Category													Comments:										
Optimal					Suboptimal			Marginal			Poor												
Instream Habitat/ Available Cover	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.			Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.			Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9			8	7	6	5	4	3	2	1

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Condition Category													Comments:										
Negligible					Minor			Moderate			Severe												
Channel Alteration	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.													
						High	Low	High	Low														
						SCORE	20	19	18					17	16	15	14	13	12	11	10	9	8

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.46

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

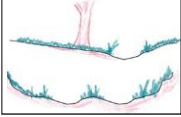
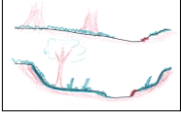
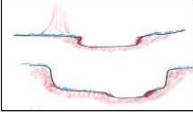
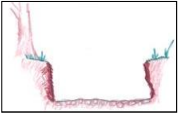
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/03/17	Designated:	Existing:	390 ft
Latitude	41.849635	Longitude	-78.0293	FGM Level 1 Channel Classification		A
Evaluator(s)		Stream Name and Information		Notes: Ephemeral stream that crosses maintained ROW. Average width of approximately 4 ft, average depth of 0.5 ft. Temporary impacts to 4 ft.		
J. Miner, M. Groomer		Stream103; UNT to Whitney Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category						
	Optimal	Suboptimal	Marginal	Poor	Severe		
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments:	CI = (Score)/20	CI
	SCORE	9 0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category				Comments:	
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.								
2. Estimate the % area within each condition category.								
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.								
Ensure the sum of the % Riparian Area Blocks equal 100								
Right Side	Condition Category						Side Sub-Index	
	% Riparian Area:	20%	25%	20%	25%	10%	0%	
	Score:	14	12	9	7	4	0	
	Total Sub-score:	2.80	3.00	1.80	1.75	0.40	0.00	
Left Side	Condition Category							
	% Riparian Area:	20%	25%	20%	25%	10%	0%	
	Score:	14	12	9	7	4	0	
	Total Sub-score:	2.80	3.00	1.80	1.75	0.40	0.00	
0.49							CI = (Left Side CI + Right Side CI)/2	CI
0.49							0.49	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	25%	20%	25%	10%	0%	0.49		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	3.00	1.80	1.75	0.40	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	25%	20%	25%	10%	0%	0.49	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.49
	Total Sub-score:	2.80	3.00	1.80	1.75	0.40	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

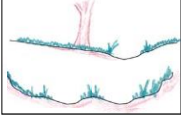
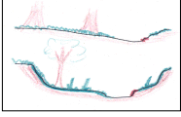
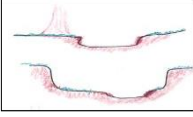
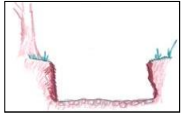
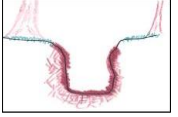
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/09/17	Designated:	Existing:	240 ft	
Latitude	41.762724	Longitude	-78.474626	FGM Level 1 Channel Classification		A	
Evaluator(s)		Stream Name and Information		Notes: Ephemeral stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream109; UNT to Donely Fork					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:																			
CI = (Score)/20 SCORE90.45																			

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																			
2. Estimate the % area within each condition category.																			
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																			
Ensure the sum of the % Riparian Area Blocks equal 100																			
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	10%	20%	40%	10%	0.34											
	Score:	14	12	9	7	4	2												
	Total Sub-score:	1.40	1.20	0.90	1.40	1.60	0.20												
Left Side	Condition Category																0.39	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	15%	15%	15%	15%	30%	10%												
	Score:	14	12	9	7	4	2												
	Total Sub-score:	2.10	1.80	1.35	1.05	1.20	0.20												

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	10%	10%	40%	20%	0.31		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	0.90	0.70	1.60	0.40			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	30%	10%	0.39	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.35
	Total Sub-score:	2.10	1.80	1.35	1.05	1.20	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
	SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20		CI				
																									SCORE 11		0.55					

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

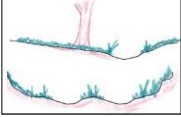
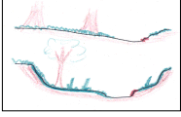
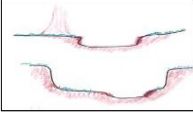
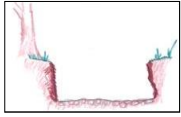
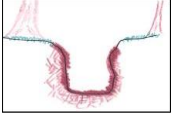
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/09/17	Designated:	Existing:	70 ft	
Latitude	41.761648	Longitude	-78.473964	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream110; UNT to Donely Fork					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE90.45															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																			
2. Estimate the % area within each condition category.																			
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																			
Ensure the sum of the % Riparian Area Blocks equal 100																			
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	30%	10%	0.39											
	Score:	14	12	9	7	4	2												
	Total Sub-score:	2.10	1.80	1.35	1.05	1.20	0.20												
Left Side	Condition Category																0.39	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	15%	15%	15%	15%	30%	10%												
	Score:	14	12	9	7	4	2												
	Total Sub-score:	2.10	1.80	1.35	1.05	1.20	0.20												

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	30%	10%	0.39		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	1.20	0.20			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	30%	10%	0.39	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.39
	Total Sub-score:	2.10	1.80	1.35	1.05	1.20	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55									

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.37

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Comments:

CI = (Score)/20		CI
SCORE	9	0.45

Condition Category				Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7

[illegible]

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1											

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55									

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.37

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

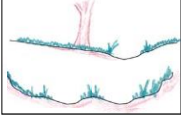
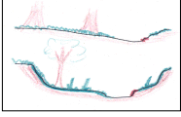
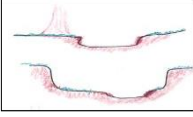
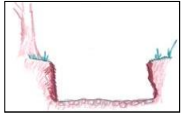
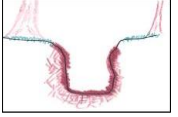
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/09/17	Designated:	Existing:	70 ft	
Latitude	41.75715	Longitude	-78.470529	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 1.5 ft, average depth of 0.5 ft. Temporary impacts to 1 ft.			
J. Miner, M. Groomer		Stream112; UNT to Donely Fork					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE90.45															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																			
2. Estimate the % area within each condition category.																			
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																			
Ensure the sum of the % Riparian Area Blocks equal 100																			
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	25%	15%										0.38		
	Score:	14	12	9	7	4	2												
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30												
Left Side	Condition Category																0.38	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	15%	15%	15%	15%	25%	15%												
	Score:	14	12	9	7	4	2												
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30												

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
																					CI = (Score)/20					CI						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.37

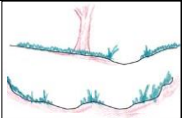
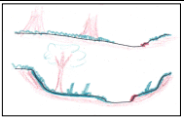
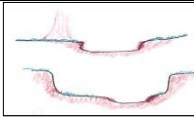
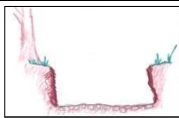
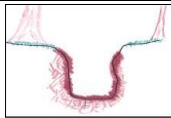
If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category

Channel / Floodplain	Optimal				Suboptimal				Marginal				Poor				Severe			
																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category																	Comments:			
Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
						High		Low			High			Low		High		Low		
						SCORE	20	19	18	17	16	15	14	13	12	11		10	9	8

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			
Left Side	Condition Category									
	% Riparian Area:	15%	15%	15%	15%	25%	15%	0.38	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.38
	Total Sub-score:	2.10	1.80	1.35	1.05	1.00	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	CI = (Score)/20		CI								
																						SCORE	11	0.55								

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

0.37

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

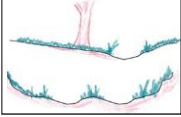
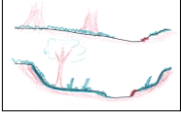
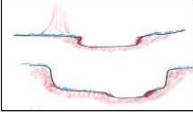
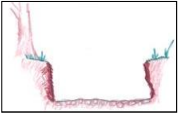
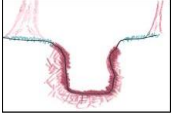
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		10/09/17	Designated:	Existing:	68 ft	
Latitude	41.744571	Longitude	-78.439766	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3.5 ft.			
J. Miner, M. Groomer		Stream 114: UNT to Donely Fork					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE90.45															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																				
2. Estimate the % area within each condition category.																				
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																				
Ensure the sum of the % Riparian Area Blocks equal 100																				
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	10%	20%	20%	20%	20%	10%										0.40			
	Score:	14	12	9	7	4	2													
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20													
Left Side	Condition Category																	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	10%	20%	20%	20%	20%	10%													
	Score:	14	12	9	7	4	2													
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20													

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																	Comments:																			
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																				
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with					High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.	Ensure the sums of % Riparian ZOI Blocks equal 100

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	15%	20%	20%	20%	15%	0.38		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.80	1.80	1.40	0.80	0.30			
Left Side	Condition Category									
	% Riparian Area:	10%	15%	15%	15%	30%	15%	0.36	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.37
	Total Sub-score:	1.40	1.80	1.35	1.05	1.20	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:																																																																																													
	Optimal					Suboptimal					Marginal							Poor																																																																																											
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.																																																																																													
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	CI = (Score)/20		CI																																																																																	
	SCORE					20					19					18					17					16					15					14					13					12					11					10					9					8					7					6					5					4					3					2					1					SCORE		2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:														
	Negligible					Minor					Moderate							Severe												
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low					High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55							

RIVERINE CONDITION INDEX (RCI)		RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.	$RCI = (\text{Sum of all CI's})/5$	0.37

RCI = (Sum of all CI's)/5	0.37

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

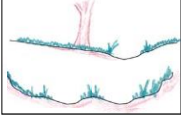
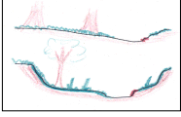
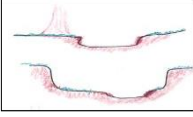
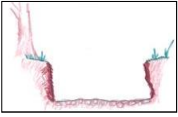
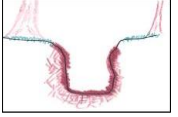
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project		07/31/18	Designated:	Existing:		368 ft	
Latitude	41.845538	Longitude	-78.052814	FGM Level 1 Channel Classification		A		
Evaluator(s)		Stream Name and Information			Notes: Ephemeral stream that crosses maintained ROW. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream115; Whitney Creek						

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal	Suboptimal	Marginal	Poor	Severe															
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	9	0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:														
	Optimal	Suboptimal	Marginal	Poor																
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.														
							SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8

1. Identify Condition Category areas along the floodplain using the descriptors above.								
2. Estimate the % area within each condition category.								
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.								
Ensure the sum of the % Riparian Area Blocks equal 100								
Right Side	Condition Category						Side Sub-Index	
	% Riparian Area:	10%	20%	35%	15%	20%	0%	
	Score:	14	12	9	7	4	0	
	Total Sub-score:	1.40	2.40	3.15	1.05	0.80	0.00	
Left Side	Condition Category						0.44	
	% Riparian Area:	10%	20%	35%	15%	20%		0%
	Score:	14	12	9	7	4		0
	Total Sub-score:	1.40	2.40	3.15	1.05	0.80		0.00
CI = (Left Side CI + Right Side CI)/2							CI	
							0.44	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category																	Comments:															
Riparian ZOI	Optimal					Suboptimal					Marginal				Poor																	
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	35%	15%	20%	0%	0.44		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	1.40	2.40	3.15	1.05	0.80	0.00			
Condition Category										
Left Side	% Riparian Area:	10%	10%	35%	15%	30%	0%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.42
	Total Sub-score:	1.40	1.20	3.15	1.05	1.20	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

CI = (Score)/20

CI

SCORE 1 0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:						
	Negligible					Minor					Moderate							Severe				
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.				Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.			Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.				Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High	Low				High			Low								
						SCORE	20	19	18	17	16	15	14	13	12	11	10					
															CI = (Score)/20		CI					
															SCORE		15	0.75				

CI = (Score)/20

CI

SCORE 15 0.75

RIVERINE CONDITION INDEX (RCI)

RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.42

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

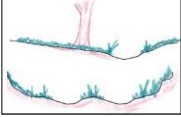
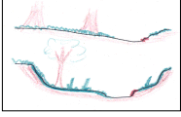
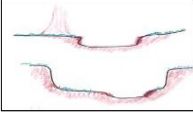
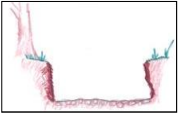
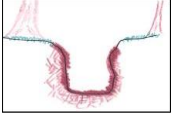
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project		08/01/18	Designated:	Existing:		610 ft	
Latitude	41.845379	Longitude	-78.064144	FGM Level 1 Channel Classification		B		
Evaluator(s)		Stream Name and Information			Notes: Perennial stream that crosses agricultural area and PEM wetlands. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
J. Miner, M. Groomer		Stream 116; East Branch Fishing Creek						

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:																			
	CI = (Score)/20 SCORE16CI0.80																		

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.											
2. Estimate the % area within each condition category.											
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.											
Ensure the sum of the % Riparian Area Blocks equal 100											
Right Side	Condition Category								Side Sub-Index		
	% Riparian Area:	10%	20%	15%	35%	20%	0%	0.42	Side Sub-Index = SUM(%Areas*Scores)/20		
	Score:	14	12	9	7	4	0				
	Total Sub-score:	1.40	2.40	1.35	2.45	0.80	0.00				
Left Side	Condition Category									0.42	CI = (Left Side CI + Right Side CI)/2
	% Riparian Area:	10%	20%	15%	35%	20%	0%				
	Score:	14	12	9	7	4	0				
	Total Sub-score:	1.40	2.40	1.35	2.45	0.80	0.00				

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	15%	15%	25%	25%	10%	0.37		
	Score:	14	12	9	7	4	1			
	Total Sub-score:	1.40	1.80	1.35	1.75	1.00	0.10			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	15%	30%	25%	0%	0.41	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.39
	Total Sub-score:	1.40	2.40	1.35	2.10	1.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	9	0.45

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																	
	Negligible					Minor					Moderate								Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low								High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	12	0.60										

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

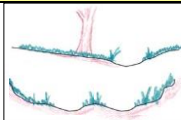
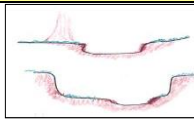
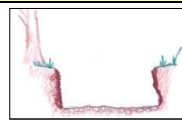
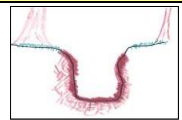
RCI

0.53

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20		CI
SCORE	12	0.60

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.	Ensure the sum of the % Riparian Area Blocks equal 100

	Condition Category							Side Sub-Index		
Right Side	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
	Condition Category									
Left Side	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	20%	10%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	10	0.50

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	15	0.75									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.53

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project		08/02/18	Designated:	Existing:		278 ft	
Latitude	41.767371	Longitude	-78.315035	FGM Level 1 Channel Classification		A		
Evaluator(s)		Stream Name and Information			Notes: Ephemeral stream that drains to PEM wetland. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 5 ft.			
J. Miner, M. Groomer		Stream 122; UNT to Skinner Creek						

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Banks are vegetated.

CI = (Score)/20	CI
SCORE 14	0.70

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category															Comments:						
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor								
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.	
					High				Low				High			Low		High		Low	
					SCORE				20 19 18 17 16				15 14 13 12 11				10 9 8 7 6		5 4 3 2 1		

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
Right Side	% Riparian Area:	25%	25%	25%	25%	0%	0%			
	Score:	14	12	9	7	0	0			
	Total Sub-score:	3.50	3.00	2.25	1.75	0.00	0.00			
Condition Category							0.53	CI = (Left Side CI + Right Side CI)/2	CI	
Left Side	% Riparian Area:	25%	25%	25%	25%	0%				0%
	Score:	14	12	9	7	0				0
Total Sub-score:		3.50	3.00	2.25	1.75	0.00	0.00		0.53	

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	25%	25%	25%	25%	0%	0%	0.53		
	Score:	14	12	9	7	0	0			
	Total Sub-score:	3.50	3.00	2.25	1.75	0.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	25%	25%	25%	25%	0%	0%	0.53	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	0	0			0.53
	Total Sub-score:	3.50	3.00	2.25	1.75	0.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
						Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
											High							Low					High									
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	CI = (Score)/20		CI									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	18	0.90									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.55

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	25%	25%	20%	10%	0%	0.49		
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	3.00	2.25	1.40	0.40	0.00			
Left Side	Condition Category									
	% Riparian Area:	20%	25%	25%	20%	10%	0%	0.49	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	0			0.49
	Total Sub-score:	2.80	3.00	2.25	1.40	0.40	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category													Comments:								
Optimal					Suboptimal			Marginal			Poor										
Riparian ZOI	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained.	High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.										
						High	Low	High	Low	High	Low										
						SCORE	20	19	18	17	16			15	14	13	12	11	10	9	8
1. Identify Condition Category areas along the floodplain using the descriptors above.																					
2. Estimate the % area within each condition category.																					
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.													Ensure the sums of % Riparian ZOI Blocks equal 100								
Right Side		Condition Category																0.42		Side Sub-Index = SUM(%Areas*Scores)/20	
		% Riparian Area:		15%		15%		20%		25%		25%		0%							
		Score:		14		12		9		7		4		0							
		Total Sub-score:		2.10		1.80		1.80		1.75		1.00		0.00							
Left Side		Condition Category																0.45		CI = (Left Side CI + Right Side CI)/2 CI 0.44	
		% Riparian Area:		20%		20%		20%		15%		25%		0%							
		Score:		14		12		9		7		4		0							
		Total Sub-score:		2.80		2.40		1.80		1.05		1.00		0.00							

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Condition Category													Comments:																																																			
Optimal					Suboptimal			Marginal			Poor																																																					
Instream Habitat/ Available Cover	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.			Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.			Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.		CI = (Score)/20 CI 0.90																																																		
	SCORE					20			19			18				17			16			15			14			13			12			11			10			9			8			7			6			5			4			3			2			1

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Condition Category													Comments:																																																			
Negligible					Minor			Moderate			Severe																																																					
Channel Alteration	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.		CI = (Score)/20 CI 0.90																																																				
						High	Low	High	Low																																																							
						SCORE								20			19			18			17			16			15			14			13			12			11			10			9			8			7			6			5			4		

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.73

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Comments: Banks are vegetated.

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Ensure the sum of the % Riparian Area Blocks equal 100

Left Side	Score:	14	12	9	7	4	0	0.46	CI = (Left Side CI + Right Side CI)/2	0.46
	Total Sub-score:	2.80	2.40	1.80	1.40	0.80	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																				
Optimal					Suboptimal					Marginal							Poor																		
Riparian ZOI	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained.					High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High					Low					High					Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1									

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

										Ensure the sums of % Riparian ZOI Blocks equal 100																																				
Condition Category																											Side Sub-Index = SUM(%Areas*Scores)/20																			
Right Side	% Riparian Area:	15%					15%					20%					25%					25%										0%					0.42									
	Score:	14					12					9					7					4										0														
	Total Sub-score:	2.10					1.80					1.80					1.75					1.00					0.00																			
Condition Category																																0.42					CI = (Left Side CI + Right Side CI)/2					CI				
Left Side	% Riparian Area:	15%					15%					20%					25%					25%					0%																			
	Score:	14					12					9					7					4					0																			
	Total Sub-score:	2.10					1.80					1.80					1.75					1.00					0.00																			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Condition Category															Comments:																								
Optimal					Suboptimal					Marginal							Poor																						
Instream Habitat/ Available Cover	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.																							
																					CI = (Score)/20					CI													
																					SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6			

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Condition Category															Comments:																																			
Negligible					Minor					Moderate							Severe																																	
Channel Alteration	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.					Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.																								
																															High					Low					High					Low				
																															SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.67

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Comments: Banks are vegetated.

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Right Side	Condition Category							0.49	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	20%	25%	25%	20%	10%	0%			
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	3.00	2.25	1.40	0.40	0.00			
Left Side	Condition Category							0.49	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	20%	25%	25%	20%	10%	0%			
	Score:	14	12	9	7	4	0			
	Total Sub-score:	2.80	3.00	2.25	1.40	0.40	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category													Comments:								
Optimal					Suboptimal			Marginal			Poor										
Riparian ZOI	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained.	High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-kill cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.										
						High	Low	High	Low	High	Low										
						SCORE	20	19	18	17	16			15	14	13	12	11	10	9	8
1. Identify Condition Category areas along the floodplain using the descriptors above.																					
2. Estimate the % area within each condition category.																					
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.													Ensure the sums of % Riparian ZOI Blocks equal 100								
Right Side		Condition Category															0.42		Side Sub-Index = SUM(%Areas*Scores)/20		
		% Riparian Area:		15%	15%	20%	25%	25%	0%												
		Score:		14	12	9	7	4	0												
		Total Sub-score:		2.10	1.80	1.80	1.75	1.00	0.00												
Left Side		Condition Category															0.45		CI = (Left Side CI + Right Side CI)/2		CI
		% Riparian Area:		20%	20%	20%	15%	25%	0%												
		Score:		14	12	9	7	4	0												
		Total Sub-score:		2.80	2.40	1.80	1.05	1.00	0.00	0.44											

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Condition Category													Comments:										
Optimal					Suboptimal			Marginal			Poor												
Instream Habitat/ Available Cover	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.			Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.			Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
	CI = (Score)/20					CI																	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9			8	7	6	5	4	3	2	1

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Condition Category													Comments:										
Negligible					Minor			Moderate			Severe												
Channel Alteration	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.													
						High	Low	High	Low														
						SCORE	20	19	18					17	16	15	14	13	12	11	10	9	8

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.71

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

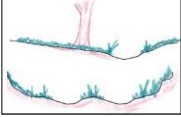
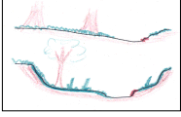
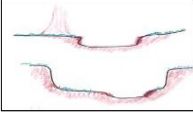
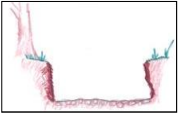
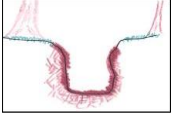
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		08/01/18	Designated: Existing:		72 ft
Latitude	41.846223	Longitude	-78.084138	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Runs across access road and is connected to PEM wetland. Average width of approximately 3 ft, average depth of 0.3 ft. Temporary impacts to 3 ft.		
T. Malecki, M. Groomer		Stream 150; UNT to Fishing Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:																			
	CI = (Score)/20 SCORE10CI0.50																		

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category								Side Sub-Index	
	% Riparian Area:	0%	0%	20%	20%	20%	40%	0.24	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	0	0	9	7	4	2			
	Total Sub-score:	0.00	0.00	1.80	1.40	0.80	0.80			
Left Side	Condition Category									
	% Riparian Area:	0%	0%	20%	20%	20%	40%	0.24	CI = (Left Side CI + Right Side CI)/2	CI0.24
	Score:	0	0	9	7	4	2			
	Total Sub-score:	0.00	0.00	1.80	1.40	0.80	0.80			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	0%	20%	20%	20%	40%	0.24		
	Score:	0	0	9	7	4	2			
	Total Sub-score:	0.00	0.00	1.80	1.40	0.80	0.80			
Left Side	Condition Category									
	% Riparian Area:	0%	0%	20%	20%	20%	40%	0.24	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	0	9	7	4	2			0.24
	Total Sub-score:	0.00	0.00	1.80	1.40	0.80	0.80			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Runs through access road and three culverts																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.					
						High					Low								High					Low										
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI				
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 10					0.50				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

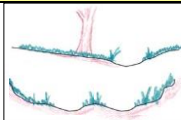
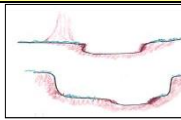
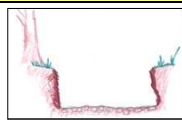
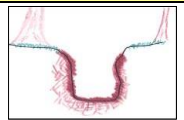
RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Channel Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 2) stable point bars and bankfull benches may be present; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Condition Category																	Comments:				
Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor					
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
						High		Low		High		Low		High		Low					
						SCORE	20	19	18	17	16	15	14	13	12	11		10	9	8	7

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40		
	Score:	0	12	9	7	4	0			
	Total Sub-score:	0.00	3.00	2.25	1.75	1.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	0%	25%	25%	25%	25%	0%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	0			0.40
	Total Sub-score:	0.00	3.00	2.25	1.75	1.00	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
						High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length	
	FM100 Modernization Project		08/02/18	Designated:	Existing:	74 ft	
Latitude	41.839336	Longitude	-78.108711	FGM Level 1 Channel Classification		B	
Evaluator(s)		Stream Name and Information			Notes: Average width of approximately 1 ft, average depth of 0.3 ft. Temporary impacts to 1.5 ft.		
T. Malecki, M. Groomer		Stream 153; UNT to Fishing Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:																
	CI = (Score)/20 SCORE90.45															

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

	Condition Category																Comments:												
Riparian Vegetation (Floodplain)	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

1. Identify Condition Category areas along the floodplain using the descriptors above.																				
2. Estimate the % area within each condition category.																				
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.																				
Ensure the sum of the % Riparian Area Blocks equal 100																				
Right Side	Condition Category																Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	0%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	0.33			
	Score:	0	12	9	7	4	1													
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20													
Left Side	Condition Category																	0.33	CI = (Left Side CI + Right Side CI)/2	CI
	% Riparian Area:	0%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%					
	Score:	0	12	9	7	4	1													
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20													

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	20%	20%	20%	20%	0.33		
	Score:	0	12	9	7	4	1			
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20			
Condition Category										
Left Side	% Riparian Area:	0%	20%	20%	20%	20%	20%	0.33	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	1			0.33
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Runs across access road and has three culverts.														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	10	0.50						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length	
	FM100 Modernization Project		08/02/18	Designated:	Existing:		61 ft	
Latitude	41.839671	Longitude	-78.107817	FGM Level 1 Channel Classification			B	
Evaluator(s)		Stream Name and Information			Notes: Average width of approximately 1 ft, average depth of 0.3 ft. Temporary impacts to 1 ft.			
T. Malecki, M. Groomer		Stream 154; UNT to Fishing Creek						

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:

CI = (Score)/20	CI
SCORE	9
	0.45

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

		Condition Category															Comments:													
		Optimal				Suboptimal				Marginal				Poor																
Riparian Vegetation (Floodplain)		Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High				Low				High				Low				High				Low				
	SCORE						20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3	2	1			

1. Identify Condition Category areas along the floodplain using the descriptors above.														
2. Estimate the % area within each condition category.														
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.														
Ensure the sum of the % Riparian Area Blocks equal 100														
Condition Category										Side Sub-Index		Side Sub-Index = SUM(%Areas*Scores)/20		
Right Side	% Riparian Area:	0%	20%	20%	20%	20%	20%	20%	20%	0.33				
	Score:	0	12	9	7	4	1							
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20							
Condition Category												0.33	CI = (Left Side CI + Right Side CI)/2	CI
Left Side	% Riparian Area:	0%	20%	20%	20%	20%	20%	20%	20%					
	Score:	0	12	9	7	4	1							
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20							

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	20%	20%	20%	20%	0.33		
	Score:	0	12	9	7	4	1			
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	0%	20%	20%	20%	20%	20%	0.33	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	1			0.33
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Runs across access road and has three culverts.														
	Negligible					Minor					Moderate								Severe											
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alterom, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.	
						High					Low					High					Low									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	10	0.50						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.															RCI = (Sum of all CI's)/5					RCI	
																				0.35	

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

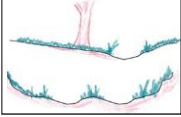
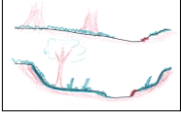
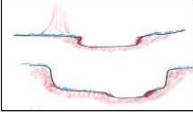
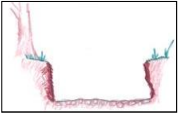
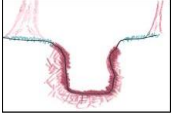
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		08/02/18	Designated: Existing:		90 ft
Latitude	41.837491	Longitude	-78.120161	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Average width of approximately 12 ft, average depth of 1 ft. Temporary impacts to 13.5 ft.		
T. Malecki, M. Groomer		Stream 155; UNT to Fishing Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category								
	Optimal	Suboptimal	Marginal	Poor	Severe				
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments:	CI = (Score)/20	CI
	SCORE	15 0.75

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

1. Identify Condition Category areas along the floodplain using the descriptors above.						
2. Estimate the % area within each condition category.						
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.						
Ensure the sum of the % Riparian Area Blocks equal 100						
Right Side	Condition Category					Side Sub-Index
	% Riparian Area:	0%	20%	20%	20%	20%
	Score:	0	12	9	7	4
Total Sub-score:		0.00	2.40	1.80	1.40	0.80
Left Side	Condition Category					
	% Riparian Area:	0%	20%	20%	20%	20%
	Score:	0	12	9	7	4
Total Sub-score:		0.00	2.40	1.80	1.40	0.80
CI = (Left Side CI + Right Side CI)/2						CI
0.33						0.33

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1											

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	20%	20%	20%	20%	20%	0.33		
	Score:	0	12	9	7	4	1			
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20			
Left Side	Condition Category									
	% Riparian Area:	0%	20%	20%	20%	20%	20%	0.33	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	1			0.33
	Total Sub-score:	0.00	2.40	1.80	1.40	0.80	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	12	0.60

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments: Runs across access road and has two culverts.													
	Negligible					Minor					Moderate								Severe										
						Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present													Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.																												
						High					Low					High					Low								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55						

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

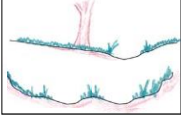
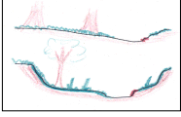
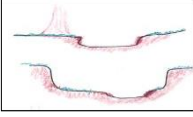
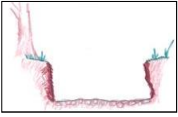
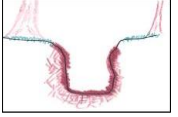
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		08/02/18	Designated:	Existing:		404 ft
Latitude	41.835606	Longitude	-78.128169	FGM Level 1 Channel Classification		C	
Evaluator(s)		Stream Name and Information		Notes: Connected to a PSS and PEM wetland. Average width of approximately 30 ft, average depth of 2 ft. Temporary impacts to 37.38 ft.			
T. Malecki, M. Groomer		Stream 156; Fishing Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	17	0.85

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									

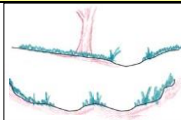
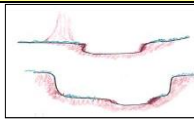
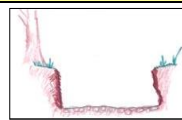
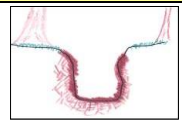
1. Identify Condition Category areas along the floodplain using the descriptors above.											
2. Estimate the % area within each condition category.											
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.											
Ensure the sum of the % Riparian Area Blocks equal 100											
Right Side	Condition Category								Side Sub-Index		
	% Riparian Area:	0%	35%	35%	20%	10%	0%	0.46	Side Sub-Index = SUM(%Areas*Scores)/20		
	Score:	0	12	9	7	4	0				
	Total Sub-score:	0.00	4.20	3.15	1.40	0.40	0.00				
Left Side	Condition Category									0.46	CI = (Left Side CI + Right Side CI)/2
	% Riparian Area:	0%	35%	35%	20%	10%	0%				
	Score:	0	12	9	7	4	0				
	Total Sub-score:	0.00	4.20	3.15	1.40	0.40	0.00		0.46		

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1											

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																				
		Optimal				Suboptimal				Marginal				Poor				Severe				
Channel / Floodplain																						
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.				
	SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20	CI
SCORE 9	0.45

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High		Low		High		Low		High		Low				
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	30%	30%	30%	10%	0%	0%	0.56		
	Score:	14	12	9	7	0	0			
	Total Sub-score:	4.20	3.60	2.70	0.70	0.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	30%	30%	30%	10%	0%	0%	0.56	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	0	0			0.56
	Total Sub-score:	4.20	3.60	2.70	0.70	0.00	0.00			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	30%	30%	30%	10%	0%	0%	0.56		
	Score:	14	12	9	7	0	0			
	Total Sub-score:	4.20	3.60	2.70	0.70	0.00	0.00			
Left Side	Condition Category									
	% Riparian Area:	30%	30%	30%	10%	0%	0%	0.56	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	0	0			0.56
	Total Sub-score:	4.20	3.60	2.70	0.70	0.00	0.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20															CI							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	19	0.95									

RIVERINE CONDITION INDEX (RCI)												RCI

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

0.52

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

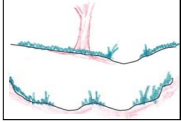
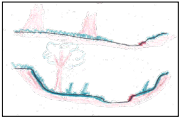
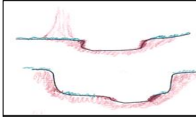
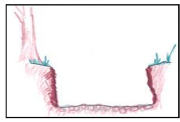
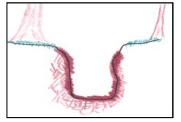
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification		AA Id	Length
	FM100 Modernization Project		08/07/18	Designated:	Existing:		315 ft
Latitude	41.21991	Longitude	-78.558361	FGM Level 1 Channel Classification			B
Evaluator(s)		Stream Name and Information		Notes: Connected to ditch and drains PSS wetland. Average width of approximately 3.5 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.			
T. Malecki, M. Groomer		Stream 179; UNT to Bennett Branch Sinnemahoning Creek					

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

		Condition Category																			
Channel / Floodplain	Optimal	Suboptimal				Marginal				Poor				Severe							
																					
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.	Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.							
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 2) stable point bars and bankfull benches may be present; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain.	Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.							
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.	Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments:

CI = (Score)/20

CI

SCORE120.60

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

		Condition Category																Comments:		
Riparian Vegetation (Floodplain)	Optimal	Suboptimal				Marginal				Poor										
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sum of the % Riparian Area Blocks equal 100

Condition Category								Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
Right Side	% Riparian Area:	5%	15%	20%	40%	10%	10%	0.50		
	Score:	16	14	12	9	7	4			
	Total Sub-score:	0.80	2.10	2.40	3.60	0.70	0.40			
Condition Category										
Left Side	% Riparian Area:	5%	15%	20%	40%	10%	10%	0.50	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	16	14	12	9	7	4			0.50
	Total Sub-score:	0.80	2.10	2.40	3.60	0.70	0.40			0.50

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category													Comments:									
Optimal					Suboptimal			Marginal			Poor											
Riparian ZOI	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained.	High Poor: Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.											
						High	Low	High	Low	High	Low											
						15	14	13	12	11	10			9	8	7	6	5	4	3	2	1
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Condition Category										Ensure the sums of % Riparian ZOI Blocks equal 100												
Right Side	Condition Category																Side Sub-Index		Side Sub-Index = SUM(%Areas*Scores)/20			
	% Riparian Area:		5%		15%		20%		25%		20%		15%									
	Score:		16		14		12		9		7		4									
	Total Sub-score:		0.80		2.10		2.40		2.25		1.40		0.60									
Left Side	Condition Category																0.48		CI = (Left Side CI + Right Side CI)/2		CI	
	% Riparian Area:		5%		15%		20%		25%		20%		15%									
	Score:		16		14		12		9		7		4									
	Total Sub-score:		0.80		2.10		2.40		2.25		1.40		0.60									

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Condition Category													Comments:										
Optimal					Suboptimal			Marginal			Poor												
Instream Habitat/ Available Cover	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.			Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.			Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Condition Category													Comments:										
Negligible					Minor			Moderate			Severe												
Channel Alteration	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present.	Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.													
						High	Low	High	Low														
						15	14	13	12					11	10	9	8	7	6	5	4	3	2
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	16	0.80

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

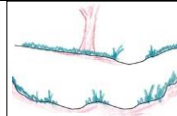
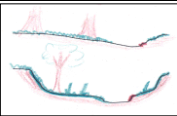
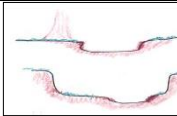
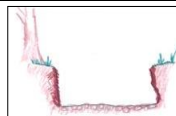
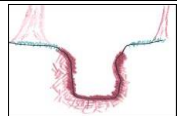
RCI

0.61

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

CI = (Score)/20	CI
SCORE 12	0.60

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, herbaceous trails, recently seeded and stabilized, or other comparable condition.			Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.	
						High			Low		High			Low		High			Low	
						SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20		
	% Riparian Area:	0%	20%	20%	40%	10%	10%	0.50			
	Score:	0	14	12	9	7	4				
	Total Sub-score:	0.00	2.80	2.40	3.60	0.70	0.40				
Left Side	Condition Category										
	% Riparian Area:	0%	20%	20%	40%	10%	10%	0.50	CI = (Left Side CI + Right Side CI)/2	CI	
	Score:	0	14	12	9	7	4			0.50	
	Total Sub-score:	0.00	2.80	2.40	3.60	0.70	0.40				

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	25%	25%	25%	15%	10%	0.51		
	Score:	0	14	12	9	7	4			
	Total Sub-score:	0.00	3.50	3.00	2.25	1.05	0.40			
Left Side	Condition Category									
	% Riparian Area:	0%	10%	10%	10%	20%	50%	0.35	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	7	4			0.43
	Total Sub-score:	0.00	1.40	1.20	0.90	1.40	2.00			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	11	0.55

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Condition Category															Comments: Stream crosses maintained ROW, has bridge over it, and culverts on it.		
Negligible					Minor					Moderate							
Channel Alteration					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.							
					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.							
SCORE					High					High					CI = (Score)/20		
20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					SCORE 11		

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		08/07/18	Designated: Existing:		190 ft
Latitude	41.219159	Longitude	-78.552352	FGM Level 1 Channel Classification		A
Evaluator(s)		Stream Name and Information		Notes: Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
T. Malecki, M. Groomer		Stream 181; UNT to Bennett Branch				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																						
	Optimal				Suboptimal				Marginal				Poor				Severe						
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation.						
	Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 4) baseflow is connected to the rooting depths of vegetation in the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches.				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts;				Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain.				Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain.						
	Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.						
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments:																			
CI = (Score)/20 SCORE90.45																			

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:												
	Optimal				Suboptimal				Marginal				Poor																
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.				High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained				High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
					High				Low				High					Low				High				Low			
					SCORE				20	19	18	17	16	15	14	13		12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category									
	% Riparian Area:	0%	10%	20%	40%	20%	10%			
	Score:	0	14	12	9	7	4			
	Total Sub-score:	0.00	1.40	2.40	3.60	1.40	0.40			
Left Side	Condition Category									
	% Riparian Area:	0%	10%	20%	40%	20%	10%			
	Score:	0	14	12	9	7	4			
	Total Sub-score:	0.00	1.40	2.40	3.60	1.40	0.40			
							0.46	Side Sub-Index = SUM(%Areas*Scores)/20		
							0.46	CI = (Left Side CI + Right Side CI)/2		CI
							0.46			0.46

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	10%	20%	40%	20%	10%	0.46		
	Score:	0	14	12	9	7	4			
	Total Sub-score:	0.00	1.40	2.40	3.60	1.40	0.40			
Left Side	Condition Category									
	% Riparian Area:	0%	10%	20%	40%	20%	10%	0.46	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	14	12	9	7	4			0.46
	Total Sub-score:	0.00	1.40	2.40	3.60	1.40	0.40			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	3	0.15

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
						High					Low							High					Low									
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1						
					CI = (Score)/20					SCORE					16					0.80												

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

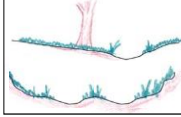
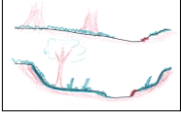
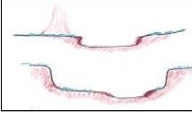
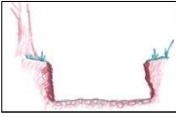
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		09/30/17	Designated:	Existing:	128 ft
Latitude	41.809476	Longitude	-78.425959	FGM Level 1 Channel Classification		B
Evaluator(s)		Stream Name and Information		Notes: Intermittent stream that crosses maintained ROW and access road. Average width of approximately 6 ft, average depth of 0.5 ft. Temporary impacts to 7 ft.		
J. Miner, M. Groomer		Stream195; UNT to Potato Creek				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category						
	Optimal	Suboptimal	Marginal	Poor	Severe		
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.

Comments:	CI = (Score)/20	CI
	SCORE	8 0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category					Comments:
	Optimal	Suboptimal	Marginal	Poor		
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		

1. Identify Condition Category areas along the floodplain using the descriptors above.						
2. Estimate the % area within each condition category.						
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.						
Ensure the sum of the % Riparian Area Blocks equal 100						
Right Side	Condition Category					Side Sub-Index
	% Riparian Area:	0%	15%	5%	30%	20%
	Score:	0	12	9	7	4
	Total Sub-score:	0.00	1.80	0.45	2.10	1.20
Left Side	Condition Category					
	% Riparian Area:	0%	15%	5%	30%	20%
	Score:	0	12	9	7	4
	Total Sub-score:	0.00	1.80	0.45	2.10	1.20
CI = (Left Side CI + Right Side CI)/2						CI
0.30						0.30

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	0%	10%	5%	10%	40%	35%	0.23		
	Score:	0	12	9	7	4	2			
	Total Sub-score:	0.00	1.20	0.45	0.70	1.60	0.70			
Left Side	Condition Category									
	% Riparian Area:	0%	10%	5%	10%	40%	35%	0.23	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	0	12	9	7	4	2			0.23
	Total Sub-score:	0.00	1.20	0.45	0.70	1.60	0.70			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	2	0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate							Severe																
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.						
						High					Low							High					Low											
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI				
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 11					0.55				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

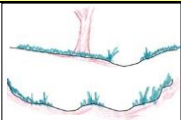
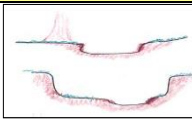
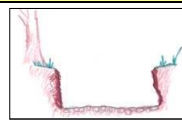
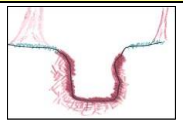
RCI = (Sum of all CI's)/5

RCI

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

For use in intermittent or perennial watercourses with drainage areas $\leq 2,000$ square mile drainage areas.

		Condition Category																			
		Optimal				Suboptimal				Marginal				Poor				Severe			
Channel / Floodplain																					
		Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.				Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.				Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.				Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.				Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

CI = (Score)/20	CI
SCORE 8	0.40

Condition Category	Comments:

Riparian Vegetation (Floodplain)	Optimal					Suboptimal					Marginal					Poor				
	Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained		High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.	
						High			Low		High			Low		High			Low	
						20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	15%	15%	20%	20%	20%	0.36		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.80	1.35	1.40	0.80	0.40			
Left Side	Condition Category									
	% Riparian Area:	10%	15%	15%	20%	20%	20%	0.36	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.36
	Total Sub-score:	1.40	1.80	1.35	1.40	0.80	0.40			

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	10%	20%	20%	30%	10%	0.36		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	1.20	1.80	1.40	1.20	0.20			
Left Side	Condition Category									
	% Riparian Area:	10%	10%	20%	20%	30%	10%	0.36	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.36
	Total Sub-score:	1.40	1.20	1.80	1.40	1.20	0.20			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:							
	Optimal					Suboptimal					Marginal							Poor					
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.							
	CI = (Score)/20					CI																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	1	0.05

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																
	Negligible					Minor					Moderate							Severe														
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not							Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.				
																					CI = (Score)/20					CI						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SCORE	13	0.65									

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CIs)/5

RCI

0.36

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Riverine Assessment Form 1

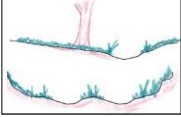
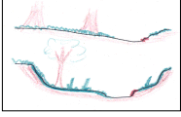
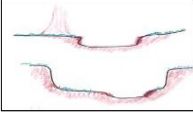
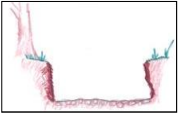
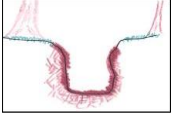
Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol (Document No. 310-2137-003)

Pennsylvania Department of Environmental Protection

For use in intermittent or perennial watercourses with drainage areas ≤ 2,000 square mile drainage areas.

Project #	Project Name	Locality	Date	Ch 93 Classification	AA Id	Length
	FM100 Modernization Project		10/07/17	Designated: Existing:		114 ft
Latitude	41.753734	Longitude	-78.364582	FGM Level 1 Channel Classification		A
Evaluator(s)		Stream Name and Information		Notes: Ephemeral stream that crosses maintained ROW and access road. Average width of approximately 3 ft, average depth of 0.5 ft. Temporary impacts to 3 ft.		
J. Miner, M. Groomer		Stream198; UNT to Walcott Brook				

1. CHANNEL/FLOODPLAIN: Assess the cross-section of the stream and prevailing conditions along the AA.

Channel / Floodplain	Condition Category																			
	Optimal				Suboptimal				Marginal				Poor				Severe			
	Channel Geometry: These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. Channel Stability: Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 3) stable point bars and bankfull benches may be present; 4) mid-channel bars and transverse bars are rare and if transient channel sediment deposition is present, it covers less than or equal to 10% of the stream bottom; 5) baseflow is connected to the rooting depths of vegetation in the active floodplain. Active Floodplain Connection: The bankfull stream flows have frequent access to the active floodplain and fully developed point bars or bankfull benches that are accessed at most flows greater than baseflow.		Channel Geometry: These channels are slightly incised or overwidened and contain a few areas of active erosion. Channel Stability: Visual indicators include: 1) the banks are actively eroding along less than 25% of the reach; 2) depositional features such as point bars and bankfull benches are present and stable during high flows and occur along greater than 50% of the reach; 3) natural bank protection like vegetation or rock is providing stability along greater than 50% of the reach; 4) baseflow is connected to vegetated point bars and bankfull benches. Active Floodplain Connection: The bankfull stream flows frequently access bankfull benches, or point bars along portions of the reach and may frequently inundate the active floodplain.		Channel Geometry: These channels are over-widened or incised, but to a lesser degree than the Severe and Poor channel conditions. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 25% and less than or equal to 50% of the reach; 2) depositional features like point bars or bankfull benches occur along greater than 25% and less than or equal to 50% of the reach; 3) the stream banks may consist of some vertical or undercut banks or nick points associated with head cuts; Active Floodplain Connection: The bankfull stream flows have infrequent connection to the active floodplain.		Channel Geometry: These channels are over-widened or incised and eroding vertically and/or laterally. Channel Stability: Visual indicators include: 1) the banks are eroding or severely undercut along greater than 50% of the reach; 2) active or recent bank sloughing is present along greater than 50% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion along the reach; 4) depositional features, such as point bars and bank full benches, are absent from the reach or newly developing along less than 25% of the reach; 5) bank full benches and point bars frequently scour during high flows; 6) baseflow is disconnected from plant rooting depths and the active floodplain. Active Floodplain Connection: The bankfull stream flows are not connected to the active floodplain.		Channel Geometry: These channels are deeply incised and actively eroding vertically and/or laterally. Over widened channels may contain sections of unstable braided channels from aggradation. Channel Stability: Visual indicators include: 1) the banks are actively eroding or being undercut along greater than 80% of the reach; 2) active or recent bank sloughing is occurring along greater than 80% of the reach; 3) natural bank protection like vegetation is not preventing bank erosion or sloughing; 4) depositional features such as point bars and bankfull benches are absent; 5) flood flows are disconnected from the active floodplain. Active Floodplain Connection: The bankfull stream flows are never connected to the active floodplain.											
										SCORE	20	19	18	17	16	15	14	13	12	11

Comments:	CI = (Score)/20		CI
	SCORE	8	0.40

2. RIPARIAN VEGETATION: Assess the floodplain along the entire AA (Visual estimates of areal coverage from aerial photos with field verification acceptable).

Riparian Vegetation (Floodplain)	Condition Category																Comments:			
	Optimal				Suboptimal				Marginal				Poor							
Riparian area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained	High Poor: Riparian area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	Low Poor: Riparian area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.														
							High	Low	High	Low	High	Low								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

1. Identify Condition Category areas along the floodplain using the descriptors above.										
2. Estimate the % area within each condition category.										
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below.										
Ensure the sum of the % Riparian Area Blocks equal 100										
Right Side	Condition Category								Side Sub-Index	
	% Riparian Area:	10%	20%	20%	20%	15%	15%	0.40	Side Sub-Index = SUM(%Areas*Scores)/20	
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.60	0.30			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	15%	15%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.60	0.30			0.40

Riverine Assessment Form 1 - Page 2

3. RIPARIAN ZONE OF INFLUENCE: Assess land cover along both sides, 100 feet from edge of floodplain into the upland along the entire AA. (rough measurements of length & width may be acceptable)

Condition Category															Comments:																	
Riparian ZOI	Optimal					Suboptimal					Marginal					Poor																
	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with				High Poor: Riparian ZOI area vegetation consists of lawns, moved, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
						High					Low					High				Low				High				Low				
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6				5 4 3 2 1				5 4 3 2 1			

1. Identify Condition Category areas along the floodplain using the descriptors above.

2. Estimate the % area within each condition category.

3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

Right Side	Condition Category							Side Sub-Index	Side Sub-Index = SUM(%Areas*Scores)/20	
	% Riparian Area:	10%	20%	20%	20%	15%	15%	0.40		
	Score:	14	12	9	7	4	2			
	Total Sub-score:	1.40	2.40	1.80	1.40	0.60	0.30			
Left Side	Condition Category									
	% Riparian Area:	10%	20%	20%	20%	15%	15%	0.40	CI = (Left Side CI + Right Side CI)/2	CI
	Score:	14	12	9	7	4	2			0.40
	Total Sub-score:	1.40	2.40	1.80	1.40	0.60	0.30			

4. INSTREAM HABITAT: Varied substrate sizes, water velocity and depths, woody and leafy debris, stable substrate, low embeddedness, shade, undercut banks, root mats, SAV, macrophytes, emergent vegetation, riffle-pool complexes, stable features.

Instream Habitat/ Available Cover	Condition Category															Comments:											
	Optimal					Suboptimal					Marginal							Poor									
	Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 50% of the reach. Substrate is favorable for colonization by a diverse and abundant epifaunal community, and there are many suitable areas for epifaunal colonization and/or fish cover.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 30% and less than 50% of the reach. Conditions are mostly desirable and are generally suitable for full colonization by a moderately diverse and abundant epifaunal community.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in greater than or equal to 10% and less than 30% of the reach. Conditions are generally suitable for partial colonization by epifaunal and/or fish communities.					Physical Elements that enhance a stream's ability to support aquatic organisms are present in less than 10% of the reach. Conditions are generally unsuitable for colonization by epifaunal and/or fish communities. The reach.											
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20		CI
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 2		0.10

5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

Channel Alteration	Condition Category															Comments:																		
	Negligible					Minor					Moderate								Severe															
	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present					Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present								Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.					Greater than 80% of reach is disrupted by any of the channel alterations listed above. Greater than 80% of banks shored with gabion, riprap, or concrete.					
						High					Low								High					Low										
						SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1								
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					CI = (Score)/20					CI				
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					SCORE 13					0.65				

RIVERINE CONDITION INDEX (RCI)

NOTE: The CIs and RCI should be rounded to 2 decimal places.

RCI = (Sum of all CI's)/5

RCI

0.39

If a CI is not applicable (e.g. due to use on intermittent watercourse or >100 sq. mile drainage area) in order to utilize the auto calculator feature the user will need to modify the RCI formula or enter the maximum score for that CI to achieve a CI of 1.0 which will offset the divisor difference.

General Comments:

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/10/17	0.10	Pond 06	0.10	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.724942	-78.456237	WD090TMM, Pond/PUB wetland		

General Comments: Pond/PUB wetland located in man-made quarry pit (0.10 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes entire 0.10 acre of pond/PUB wetland. Wetland delineated as 0.089 acres and impacts are 0.089 acres (impact size and AA size rounded up for form).

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20																										
	Optimal					Suboptimal					Marginal					Poor																														
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.																
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1																										
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																			Total Score = SUM(%Areas*Scores)																											
2. Estimate the % area within each condition category. Calculators are provided for you below.																																														
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																														
Condition Category:																																														
% ZOI Area:																			0%					10%					30%					50%				Total Score:								
Score:																			15					12					4					1												
Total Sub-score:																			0.00					1.20					0.70					1.20								0.50				3.60

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																							
	Optimal					Suboptimal					Marginal						Poor							
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0- 100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0- 100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0- 100 foot distance of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1				
Comments: Existing roads present.																								
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20								
	Optimal					Suboptimal					Marginal						Poor							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary		Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 100- 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1				
																Condition Score		Weighting		Sub-Scores		0.70		
																a. Roadbed 0-100:		14		* (0.67)			9	
																b. Roadbed 100-300:		14		* (0.33)			5	
																				Total Score:			14	

3. Vegetation Condition Index

	Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments: No Invasive Species identified in wetland AA.																																				
	Condition Category																																			
b. Vegetation	Optimal					Suboptimal					Marginal						Poor																			

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40
SCORE	20 19	18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

Comments: Cleared areas and industrial areas that are mowed and maintained.	a. Invasive Sub-Score:	20	Total Score	0.78
	b. Vegetation Sub-Score:	11	31	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20						
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.55	
Comments: Maintainece on industrial areas and runoff from roads.																Score:		11				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal				Marginal				Poor										
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.							
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance.																	Score:		16			0.80

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.																					

	Condition Category																			CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor							
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.							
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1	
Comments: No stressors identified.						a. Eutrophication Score														20	Total Score:		1.00
						b. Contaminant Score														20	40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.67

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/10/17	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD090TMM	Pond 06	41.724942	-78.456237	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	3			100-300 ft.	3		

Road Comments:

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:	X			
Total Number:		3		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/04/17	0.71	W004, W004B	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.703887	-78.496159	WD058ATMM, PEM wetland	

General Comments: PEM wetland located on hilltop depression. Multiple access roads cross the wetland channelizing it with culverts. PEM wetland adjacent to access roads, crosses well pad, and extends into maintained pipeline ROW (0.71 acres in ECL). PEM wetland upslope of existing ROW (4.32 acres delineated). PEM and PFO wetlands beyond existing ROW, downslope of Project (5.16 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area. AA includes 0.71 acres of PEM and 0.29 acres of PEM upslope of Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20						
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.								
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)													
	2. Estimate the % area within each condition category. Calculators are provided for you below.																									
	3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																									
Scoring:	Condition Category:																			Total Score:						
	% ZOI Area:		0%			0%		60%			0%			40%			0%									
	Score:		0			0		12			0			4			0									
	Total Sub-score:		0.00			0.00		7.20			0.00			1.60			0.00			8.80						
0.44																										

Comments: Area includes maintained pipeline ROW with access roads and gas well pad. Adjacent forest has maintained understory.

2. Roadbed Presence Index

Condition Categories																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No roadbeds present within 100 feet of the AA boundary					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				
	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Gravel access road to gas well pad.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					14					* (0.67)					9															
											b. Roadbed 100-300:					14					* (0.33)					5															
																					Total Score:					14															
																										0.70															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Gravel access road to gas well pad.

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																					
a. Invasive Species Presence	Condition Category																				
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No invasives present. Low Optimal: <5% of the total AA contains invasive species.	High Suboptimal: >5% but less than 10% of the total AA contains invasive species. Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species. Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Poor: > 50% of the total AA contains invasive species.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No Invasive Species identified in wetland AA.																					
4. Hydrologic Modification Index																					
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No vegetation stressors present within the AA boundary. Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary. Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary. Low Marginal: Five vegetation stressors present within the AA boundary.					Poor: Greater than five vegetation stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20	Total Score		0.80		
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32				
5. Sediment Stressor Index																					
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No hydrologic stressors present within the AA boundary. Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary. Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary. Low Marginal: Five hydrologic stressors present within the AA boundary.					Poor: Greater than five hydrologic stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Ditch and culverts on access roads near gas well pad.											Score:					12					0.60
6. Water Quality Stressor Index																					
Sediment Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No sediment stressors present within the AA boundary. Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary. Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary. Low Marginal: Five sediment stressors present within the AA boundary.					Poor: Greater than five sediment stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Two stressors identified due to ROW maintenance, ATV use, and cleared area for gas well pad.											Score:					14					0.70
7. Eutrophication Stressor Index																					
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20	Total Score:		1.00		
											b. Contaminant Score					20	40				
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.											Overall Condition Index:					0.71					

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/04/17	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD058ATMM	W004, W0	41.703887	-78.496159	Pipeline access roads and gas well pad

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	3			100-300 ft.	3		

Road Comments: Dirt access road/atv trail used for pipeline inspection and maintenance. Gravel access road to gas well pad.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/04/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods	X			
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X			
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		3		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)	X			
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X			
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:				X
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/4/17	0.40	W005	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier		41.706119	-78.490757	WD056JLM, PEM and PFO wetlands	

General Comments: PEM wetland in maintained pipeline ROW (0.55 acres in ECL). PFO wetland beyond existing ROW, downslope of Project (1.90 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.55 acres of PEM and 0.45 acres of PFO downslope of Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																						Total Score:												
	% ZOI Area:		0%					0%					80%					0%						11.20											
	Score:		0					0					13					0																	
	Total Sub-score:		0.00					0.00					10.40					0.00																	
Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.																																			

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20															
	Optimal				Suboptimal				Marginal				Poor																			
	High Optimal: No roadbeds present within 100 feet of the AA boundary				Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20															
	Optimal				Suboptimal				Marginal				Poor																			
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary				Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												
																	Condition Score				Weighting				Sub-Scores							
																	a. Roadbed 0-100:				17				* (0.67)				11			
																	b. Roadbed 100-300:				17				* (0.33)				6			
																									Total Score:				17			
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal			Suboptimal			Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:			20	Total Score		0.80			
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:			12	32					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	<u>High Optimal:</u> No hydrologic stressors present within the AA boundary.					<u>High Suboptimal:</u> Two hydrologic stressors present within the AA boundary.					<u>High Marginal:</u> Four hydrologic stressors present within the AA boundary.			<u>Low Marginal:</u> Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	<u>Low Optimal:</u> One hydrologic stressor present within the AA boundary.					<u>Low Suboptimal:</u> Three hydrologic stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor						
	<u>High Optimal:</u> No sediment stressors present within the AA boundary.					<u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.		<u>High Marginal:</u> Four sediment stressors present within the AA boundary.		<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance and ATV use.																	Score:	17	0.85	

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.																				

Comments: No stressors identified.

	Condition Category																			C1 = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.82

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/4/17	J. Miner, C. Maier
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD056JLM	W005	41.706119	-78.490757	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/4/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/9/17	0.17	W006	0.37	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.707962	-78.487241	WD082JLM, PEM and PFO wetlands		

General Comments: Wetland begins within ROW and extends to the south. No wetlands to the north of the ROW. Disturbed by pipeline construction and maintenance. PEM wetland in maintained pipeline ROW (0.17 acres in ECL), PFO wetland beyond existing ROW, downslope of Project (0.12 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.25 acres of PEM and 0.12 acres of PFO downslope of Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																					
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																							Total Score:												
	% ZOI Area:		0%			0%			80%			0%			20%			0%																		
	Score:		0			0			13			0			4			0																		
	Total Sub-score:		0.00			0.00			10.40			0.00			0.80			0.00			11.20															
																						0.56														

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3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20					Total Score					0.80										
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12					32															

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17																		

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.																				

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.82

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/9/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD082JLM	W006	41.707962	-78.487241	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:		0-100 ft.	2		100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/9/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/9/17	1.02	W007, W007A, W007B	1.02	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.709785	-78.483244	WD083JLM, PEM and PFO wetlands		

General Comments: Wetland includes approximately 15-20 percent upland. Hummocky ground where the larger hummocks are upland, primarily around bases of maple trees, wetland in depressions between hummocks. Wetland drains to stream. PEM and PFO wetlands in maintained pipeline ROW (1.02 acres in ECL). PEM and PFO wetland beyond existing ROW, upslope and downslope of Project (2.35 acres delineated) beyond ECL. Impacts occur only to the PEM and PFO wetland area in the disturbed ROW. AA includes 0.82 acres of PEM (W007) and 0.20 acres of PFO (W007A and W007B) within the Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category																CI = Total Score/20																		
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																						
Scoring:	Condition Category:																						Total Score:												
	% ZOI Area:		0%				0%				60%				10%				30%								0%								
	Score:		0				0				13				7				4								0								
	Total Sub-score:		0.00				0.00				7.80				0.70				1.20				0.00				9.70								
																						0.49													

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																		
		Optimal					Suboptimal					Marginal				Poor																				
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
		SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories																			CI = Total Score/20																					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
										Condition Score										Weighting		Sub-Scores		0.85																	
										a. Roadbed 0-100:										17		* (0.67)			11																
										b. Roadbed 100-300:										17		* (0.33)			6																
																				Total Score:		17																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

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3. Vegetation Condition Index

	Condition Category														
	Optimal					Suboptimal					Marginal				
a. Invasive Species Presence	High Optimal: No invasives present. Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species. Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species. Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No Invasive Species identified in wetland AA.

	Condition Category														
	Optimal					Suboptimal					Marginal				
b. Vegetation Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary. Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary. Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary. Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments:

Maintained pipeline ROW and maintenance road/ATV trail.

a. Invasive Sub-Score:	20	Total Score	0.80
b. Vegetation Sub-Score:	12	32	

4. Hydrologic Modification Index

	Condition Category														
	Optimal					Suboptimal					Marginal				
Hydrologic Modification Stressor Presence	High Optimal: No hydrologic stressors present within the AA boundary. Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary. Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary. Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

Score:	17	0.85

5. Sediment Stressor Index

	Condition Category														
	Optimal					Suboptimal					Marginal				
Sediment Stressor Presence	High Optimal: No sediment stressors present within the AA boundary. Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary. Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary. Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: One stressor identified due to ROW maintenance and ATV use.

Score:	17	0.85

6. Water Quality Stressor Index

	Condition Category														
	Optimal					Suboptimal					Marginal				
a. Eutrophication Stressor Presence	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

	Condition Category														
	Optimal					Suboptimal					Marginal				
b. Contaminant / Toxicity Stressor Presence	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

a. Eutrophication Score	20	Total Score:	1.00
b. Contaminant Score	20	40	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/9/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD083JLM	W007, W007A, W007B	41.709785	-78.483244	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/9/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

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Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/9/17	0.10	W008	0.28	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.710627	-78.481262	RW080JLM, PEM wetland		

General Comments: PEM wetland in maintained pipeline ROW (0.10 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.18 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes entire 0.28 acres of PEM delineated within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20					
	Optimal					Suboptimal					Marginal			Poor								
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																		Total Score:			
	% ZOI Area:		0%				0%				65%		5%		30%			0%				
	Score:		0				0				13		7		4			0				
	Total Sub-score:		0.00				0.00				8.45		0.35		1.20			0.00			10.00	
																			0.50			

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and stream. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																		
		Optimal			Suboptimal					Marginal				Poor						
		High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.		High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
		SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories																CI = Total Score/20														
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																	
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
																	Condition Score			Weighting			Sub-Scores			0.85					
											a. Roadbed 0-100:			17			* (0.67)			11											
											b. Roadbed 100-300:			17			* (0.33)			6											
																	Total Score:			17											

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

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3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal		Suboptimal			Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.												
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3
Comments:											a. Invasive Sub-Score:					20	Total Score		0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32		

Comments:	Maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20								
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:		17			0.85				

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

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Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/9/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
RW080JLM	W008	41.710627	-78.481262	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/9/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

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Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
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arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
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egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/9/17	1.28	W009, W009A, W009B, Pond 03	1.28
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.71172	41.710627	RW081JLM, PEM and PFO wetlands	

General Comments: Perennial stream runs through wetlands and connects to two ponds. Wetlands drain to stream. Wetlands and pond in maintained pipeline ROW (1.28 acres in ECL). PEM and PFO wetland beyond existing ROW, upslope and downslope of Project (2.52 acres delineated) beyond ECL. Impacts occur only to the PEM and PFO wetland area in the disturbed ROW. AA includes 1.09 acres of PEM (W009), 0.17 acres of PFO (W009A and W009B), and 0.02 acres of Pond 03 within the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20					
	Optimal					Suboptimal					Marginal				Poor							
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.				High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.													Total Score = SUM(%Areas*Scores)									
2. Estimate the % area within each condition category. Calculators are provided for you below.																						
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																						
Scoring:	Condition Category:																				Total Score:	
	% ZOI Area:		0%			0%			60%			10%			30%			0%				
	Score:		0			0			13			7			4			0				
	Total Sub-score:		0.00			0.00			7.80			0.70			1.20			0.00				9.70
																					0.49	

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories																			CI = Total Score/20																					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting				Sub-Scores																					
											a. Roadbed 0-100:					17				* (0.67)				11																	
											b. Roadbed 100-300:					17				* (0.33)				6																	
																				Total Score:				17																	
																					0.85																				

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

3. Vegetation Condition Index

Condition Category															
a. Invasive	Optimal				Suboptimal				Marginal				Poor		

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Species Presence	High Optimal: No invasives present.		Low Optimal: <5% of the total AA contains invasive species.			High Suboptimal: >5% but less than 10% of the total AA contains invasive species.		Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.			High Marginal: >20% but less than 30% of the total AA contains invasive species.			Low Marginal: >30% but less than 50% of the total AA contains invasive species.			> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.				High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.				High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score			0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32			

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.				High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.				High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.				Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.											Score:					17				

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.				High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.				High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.				Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance and ATV use.											Score:					17				

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score					20	Total Score:			1.00
											b. Contaminant Score					20	40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/9/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW081JLM	W009, W009A, W009B, Pond 03	41.71172	41.710627	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/9/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/09/17	1.44	W010, W010A, W010B	1.44

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
T. Malecki, M. Groomer	41.713516	-78.476277	WD089TMM, PEM and PFO wetlands

General Comments: PEM wetland located on hillside and extends into valley bottom draining into stream. PEM wetland adjacent to forest and occurs within maintained pipeline ROW (1.22 acres in ECL). PEM wetland continues downslope of existing ROW (0.91 acres delineated). PFO wetlands beyond existing ROW, upslope of Project (3.39 acres delineated) beyond ECL. Impacts mainly occur to the PEM wetland area, but also include a small portion of the PFO wetland area. AA includes 1.22 acres of PEM (W010) and 0.22 acres of PFO (W010A and W010B) upslope of Project area.

1. Wetland Zone of Influence Condition Index

1. Wetland Zone of Influence Condition Index																																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
	SCORE					20 19 18 17 16					15 14 13 12 11					10 9					8 7 6					5 4 3 2 1									
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																							
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																																		
	% ZOI Area:		0%				0%				80%				0%				20%				0%				Total Score:								
	Score:		0				0				12				0				4				0												
	Total Sub-score:		0.00				0.00				9.60				0.00				0.80				0.00				10.40								
																					0.52														

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

2. Roadbed Presence Index																																					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																			
		Optimal					Suboptimal					Marginal					Poor																				
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					17					* (0.67)					11															
											b. Roadbed 100-300:					17					* (0.33)					6															
																					Total Score:					17															
																										0.85															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

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3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal				Poor						
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.		<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.			<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.		<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.		<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.		Greater than five vegetation stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score		0.80	
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17								

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40	
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score						20		Total Score:		1.00
											b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/09/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD089TMM	W010, W010A, W010B	41.713516	-78.476277	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/09/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/09/17	0.03	W011	0.06
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.714529	-78.474155	RW087ATMM, PEM wetland	

General Comments: PEM wetland located on hillside below intermittent stream, adjacent to forest, and occurs within maintained pipeline ROW (0.02 acres in ECL). PEM wetland continues downslope of Project (0.03 acres delineated) beyond ECL. AA includes entire 0.06 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

		Condition Category															CI = Total Score/20																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE		20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1																			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
		Condition Category:																																		
Scoring:		% ZOI Area:		0%					0%					70%					0%					30%					0%					Total Score:		
		Score:		0					0					12					0					4					0							
		Total Sub-score:		0.00					0.00					8.40					0.00					1.20					0.00					9.60		
																					0.48															

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1																				
											Condition Score					Weighting		Sub-Scores																							
											a. Roadbed 0-100:					17		* (0.67)		11																					
											b. Roadbed 100-300:					17		* (0.33)		6																					
																		Total Score:		17																					
																				0.85																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20	Total Score					0.80														
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32																			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Two culverts in wetland on intermittent stream.																Score:		14		0.70						

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40	
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score						20		Total Score:		1.00
											b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.78

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/09/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
RW087ATMM	W011	41.714529	-78.474155	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/09/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	2	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/08/17	0.02	W014	0.09	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.716949	-78.470716	WD079TMM, PEM wetland		

General Comments: PEM wetland located on hillside below intermittent stream, adjacent to forest, and occurs within maintained pipeline ROW (0.02 acres in ECL). PEM wetland continues upslope of Project (0.07 acres delineated) beyond ECL. AA includes entire 0.09 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20																
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																							
Scoring:	Condition Category:																																			
	% ZOI Area:		0%					0%					40%					0%					40%					20%					Total Score:			
	Score:		0					0					12					0					4					2								
	Total Sub-score:		0.00					0.00					4.80					0.00					1.60					0.40					6.80			
																					0.34															

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Agricultural plot and other wetlands occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																		
		Optimal					Suboptimal					Marginal					Poor			
		High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

[illegible]

	Condition Categories																			CI = Total Score/20																					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
																					Condition Score					Weighting					Sub-Scores					0.85					
											a. Roadbed 0-100:					17					* (0.67)					11															
											b. Roadbed 100-300:					17					* (0.33)					6															
																					Total Score:					17															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20	Total Score					0.80														
Area includes maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32																			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70					
Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.																Score:		14								

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor							
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
Comments: No stressors identified.																a. Eutrophication Score				20	Total Score:		1.00
																b. Contaminant Score				20	40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/08/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD079TMM	W014	41.716949	-78.470716	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/08/17	0.01	W015	0.04	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.716675	-78.47027	RW079ATMM, PEM wetland		

General Comments: PEM wetland located on hillside below culvert, adjacent to forest, and occurs within maintained pipeline ROW (0.01 acres in ECL). Intermittent stream runs through wetland. PEM wetland continues downslope of Project (0.03 acres delineated) beyond ECL. AA includes entire 0.04 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category															CI = Total Score/20																						
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal						Poor																					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1																	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)																										
Scoring:	Condition Category:																																					
	% ZOI Area:		0%					0%					50%					0%					40%					10%					Total Score:					
	Score:		0					0					12					0					4					2										
	Total Sub-score:		0.00					0.00					6.00					0.00					1.60					0.20					7.80					
																									0.39													

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Agricultural plot and other wetlands occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																		
		Optimal					Suboptimal					Marginal					Poor			
		High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

[illegible]

	Condition Categories																			CI = Total Score/20	
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor					
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary	Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.	High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.	High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
																			0.85		
										Condition Score			Weighting		Sub-Scores						
a. Roadbed 0-100:										17			* (0.67)		11						
b. Roadbed 100-300:										17			* (0.33)		6						
													Total Score:		17			0.85			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																					
a. Invasive Species Presence	Condition Category																				
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No invasives present. Low Optimal: <5% of the total AA contains invasive species.	High Suboptimal: >5% but less than 10% of the total AA contains invasive species. Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species. Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Poor: > 50% of the total AA contains invasive species.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No Invasive Species identified in wetland AA.																					
4. Hydrologic Modification Index																					
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No vegetation stressors present within the AA boundary. Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary. Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary. Low Marginal: Five vegetation stressors present within the AA boundary.					Poor: Greater than five vegetation stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Area includes maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score:					20	Total Score		0.80		
											b. Vegetation Sub-Score:					12	32				
5. Sediment Stressor Index																					
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No hydrologic stressors present within the AA boundary. Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary. Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary. Low Marginal: Five hydrologic stressors present within the AA boundary.					Poor: Greater than five hydrologic stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.															Score:		14		0.70		
6. Water Quality Stressor Index																					
Sediment Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No sediment stressors present within the AA boundary. Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary. Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary. Low Marginal: Five sediment stressors present within the AA boundary.					Poor: Greater than five sediment stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17		0.85		
7. Eutrophication Stressor Index																					
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					
8. Contaminant / Toxicity Stressor Index																					
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20	Total Score:		1.00		
											b. Contaminant Score					20	40				
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.															Overall Condition Index:					0.77	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/08/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
RW079ATMM	W015	41.716675	-78.47027	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/08/17	0.41	W016, W016A, W016B	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.720256	-78.465447	WD081TMM, PEM and PFO wetlands		

General Comments: PEM wetland located in valley bottom. Multiple man-made ponds and intermittent streams within wetland boundary. PEM wetland occurs within maintained pipeline ROW (0.40 acres in ECL) and is adjacent to forest. PEM wetland continues downslope of Project (0.12 acres delineated) beyond ECL. PFO wetland occurs partially within pipeline ROW (0.01 acres in ECL) and extends upslope of Project (0.97 acres delineated) beyond ECL. AA includes 0.52 acres of the PEM wetlands (W016A and W016B) and 0.48 acres of the PFO wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20														
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																					
Condition Category:																																		
Scoring:	% ZOI Area:	0%				0%				80%				0%				20%				0%				Total Score:								
	Score:	0				0				12				0				4				0												
	Total Sub-score:	0.00				0.00				9.60				0.00				0.80				0.00				10.40								
																					0.52													

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
											5	4	3	2	1

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											a. Invasive Sub-Score:				
											b. Vegetation Sub-Score:				
Area includes maintained pipeline ROW and maintenance road/ATV trail.											20				
											12				
											Total Score				
											32				
											0.80				

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.											Score:				
											14				
											0.70				

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: One stressor identified due to ROW maintenance and ATV use.											Score:				
											17				
											0.85				

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
											Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
											Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: No stressors identified.											a. Eutrophication Score				
											20				
											Total Score:				
											40				
											1.00				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.79

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/08/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD081TMM	W016, W016A, W016B	41.720256	-78.465447	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	4		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		2		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/08/17	0.01	W018	0.02	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.726217	-78.452289	RW083ATMM, PEM and PFO wetlands		

General Comments: PEM wetland adjacent to forest and occurs within maintained pipeline ROW (0.01 acres in ECL). PEM wetland continues downslope of Project (0.01 acres delineated) beyond ECL. Intermittent stream runs through wetland. AA includes entire 0.02 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20						
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.								
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.															Total Score = SUM(%Areas*Scores)										
	Condition Category:																				Total Score:					
	Scoring:	% ZOI Area:	0%				0%				80%				0%											
Score:		0				0				12				0												
Total Sub-score:		0.00				0.00				9.60				0.00				0.80				0.00		10.40		
																								0.52		

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Stream and culverts occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								
Condition Categories																																								
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
										Condition Score					Weighting		Sub-Scores			0.85																				
										a. Roadbed 0-100:					17		* (0.67)		11																					
										b. Roadbed 100-300:					17		* (0.33)		6																					
															Total Score:				17																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40					
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal			Poor								
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.				<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.			<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:						20	Total Score			0.80
Area includes maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:						12	32			

Comments:
Area includes maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.																Score:		14			

Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20								
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17			0.85				

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40										
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor															
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.															
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1									
Comments: No stressors identified.																a. Eutrophication Score					20					Total Score:					1.00
																b. Contaminant Score					20					40					

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.79

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/08/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
RW083ATMM	W018	41.726217	-78.452289	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/10/17	0.72	W020, W020A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.729827	-78.447915	WD092TMM, PFO and PEM wetland		

General Comments: Large PEM and PFO wetland complex with streams throughout. PFO wetland located in valley bottom in existing pipeline ROW (0.23 acres in ECL) and forested hillside. PFO wetland continues upslope of Project (0.45 acres delineated) beyond ECL. PEM wetland occurs within maintained pipeline ROW (0.49 acres in ECL) and continues downslope of Project (0.70 acres delineated) beyond ECL. Impacts occur within both the PEM and PFO wetland. AA includes 0.72 acres of the proposed impacted area to PEM and PFO wetland, and 0.28 acres of the wetland complex that will not be impacted.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																		CI = Total Score/20					
	Optimal					Suboptimal			Marginal			Poor												
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)											
Scoring:	Condition Category:																							
	% ZOI Area:		0%			0%			90%			0%			10%			0%			Total Score:			
	Score:		0			0			12			0			4			0						
	Total Sub-score:		0.00			0.00			10.80			0.00			0.40			0.00			11.20			
																					0.56			

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Streams and other wetlands occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					17					* (0.67)					11															
											b. Roadbed 100-300:					17					* (0.33)					6															
																					Total Score:					17															
																										0.85															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
											5	4	3	2	1

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:												a. Invasive Sub-Score:										20	Total Score					0.80								
Area includes maintained pipeline ROW and maintenance road/ATV trail.												b. Vegetation Sub-Score:										12	32													

4. Hydrologic Modification Index

Hydrologic Modification Index																					
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.			
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.										
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.																					
															Score:		17				

5. Sediment Stressor Index

Condition Category																	CI = Total Score/20									
Sediment Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																	Score:		17							

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
											Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	

Comments: No stressors identified.

	Condition Category															CI = Total Score/40							
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor						
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
Comments: No stressors identified.																	a. Eutrophication Score		20		Total Score:		1.00
																	b. Contaminant Score		20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.82

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/10/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD092TMM	W020, W020A	41.729827	-78.447915	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/10/17	0.81	W023	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.731417	-78.445781	WD095JLM, PEM wetland	
General Comments: Seep wetland extends across ROW and connects to stream. PEM wetland in maintained pipeline ROW (0.81 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.73 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 1.00 acre of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category												CI = Total Score/20							
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)							
Scoring:	Condition Category:																		Total Score:	
	% ZOI Area:		0%		0%		60%		10%		30%		0%							
	Score:		0		0		13		7		4		0							
	Total Sub-score:		0.00		0.00		7.80		0.70		1.20		0.00		9.70				0.49	

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and stream. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories												CI = Total Score/20							
	Optimal		Suboptimal		Marginal		Poor													
	High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.	High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories													CI = Total Score/20							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor													
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary	Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.	High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.	High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Condition Score													Weighting		Sub-Scores					
a. Roadbed 0-100:													17	* (0.67)		11				
b. Roadbed 100-300:													17	* (0.33)		6				
Total Score:															17					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments:											a. Invasive Sub-Score:					20	Total Score		0.80	
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20								
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:		17			0.85				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor			CI = Total Score/20								
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17				

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40							
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor												
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.												
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1						
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:					1.00					
																					20			40				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD095JLM	W023	41.731417	-78.445781	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/10/17	0.11	W025	0.25
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.732491	-78.444463	WD092JLM, PEM wetland	

General Comments: Seep wetland extends across ROW and connects to W026A. Seep wetland under forest canopy, trees are not within the seep. PEM wetland in maintained pipeline ROW (0.11 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.14 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.25 acre of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																											Total Score:								
Scoring:	% ZOI Area:	0%					0%					60%					10%					30%						0%							
	Score:	0					0					13					7					4						0							
	Total Sub-score:	0.00					0.00					7.80					0.70					1.20						0.00					9.70		

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and stream. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

Condition Score		Weighting		Sub-Scores	
a. Roadbed 0-100:	17	*(0.67)		11	
b. Roadbed 100-300:	17	*(0.33)		6	
Total Score:				17	

0.85

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category																	CI = Total Score/40					
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor													
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.																
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4		3	2	1		
Comments:																	a. Invasive Sub-Score:			13	Total Score		0.63
Maintained pipeline ROW and maintenance road/ATV trail.																	b. Vegetation Sub-Score:			12	25		

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor																
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1				
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. One culvert in AA.															Score:		14			0.70						

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.75

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD092JLM	W025	41.732491	-78.444463	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
mivi		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>	<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/10/17	0.55	W026, W026A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.733336	-78.443875	WD079JLM and WD091JLM, PEM and PSS wetlands		

General Comments: Site mowed routinely across ROW. Willow community present. Distinct elevation/slope break at edge of floodplain. Large wetland complex, W079 is PSS/PEM and W091 is PSS. PSS/PEM wetlands in maintained pipeline ROW (0.55 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (3.10 acres delineated) beyond ECL. Impacts occur only to the PSS/PEM wetland area in the disturbed ROW. AA includes 0.55 acres of PSS/PEM within and 0.45 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																			
	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																							
Scoring:	Condition Category:																																			
	% ZOI Area:		0%			0%			60%			10%			30%			0%			Total Score:															
	Score:		0			0			13			7			4			0																		
	Total Sub-score:		0.00			0.00			7.80			0.70			1.20			0.00			9.70															
																						0.49														

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.					
	SCORE					20	19	18	17	16	15	14	13	12	11	10		9	8	7	6	5	4	3	2	1															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20															
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																	
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
											Condition Score					Weighting			Sub-Scores					0.85							
											a. Roadbed 0-100:					17			* (0.67)			11									
											b. Roadbed 100-300:					17			* (0.33)			6									
																			Total Score:			17									

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor									
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.												
							20	19	18	17	16	15	14	13	12		11	10	9
Comments:					a. Invasive Sub-Score:					20		Total Score		0.80					
Maintained pipeline ROW and maintenance road/ATV trail.					b. Vegetation Sub-Score:					12		32							

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1														
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. One culvert in AA.															Score:					14					0.70											

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.78

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD079JLM, WD091JLM	W026, W026A	41.733336	-78.443875	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/10/17	0.20	W027	0.59
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.733914	-78.443065	WD090JLM, PEM wetland	
General Comments: Site disturbed by pipeline construction and maintenance. Wetland connected to W026A. PEM wetland in maintained pipeline ROW (0.20 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.39 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.59 acres of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																											Total Score:								
Scoring:	% ZOI Area:	0%					0%					60%					10%					30%						0%							
	Score:	0					0					13					7					4						0							
	Total Sub-score:	0.00					0.00					7.80					0.70					1.20						0.00					9.70		
Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and streams. Adjacent forest has maintained understory.																																			

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																	Condition Score					Weighting					Sub-Scores													
																	a. Roadbed 0-100:					17					* (0.67)					11								
																	b. Roadbed 100-300:					17					* (0.33)					6								
																											Total Score:					17								
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal				Poor									
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score		0.80	
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32			

4. Hydrologic Modification Index

	Condition Category																CI = Total Score/20						
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor													
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	SCORE			20 19 18 17 16			15 14 13 12 11			10 9 8 7 6			5 4 3 2 1										
	Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																	Score:			17		

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17				

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1				
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00					
																b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD090JLM	W027	41.733914	-78.443065	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/08/17	0.32	W028	0.46
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.738174	-78.439414	WD077JLM, PEM wetland	

General Comments: Site disturbed by pipeline construction and maintenance. Compacted soil and depressions within rutting. PEM wetland in maintained pipeline ROW (0.32 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.14 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.46 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																																			
Scoring:	% ZOI Area:	0%					0%					70%					0%					30%					0%					Total Score:			
	Score:	0					0					13					0					4					0								
	Total Sub-score:	0.00					0.00					9.10					0.00					1.20					0.00						10.30		
																					0.52														

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																	Condition Score				Weighting				Sub-Scores															
																	a. Roadbed 0-100:				17				* (0.67)				11											
																	b. Roadbed 100-300:				17				* (0.33)				6											
																									Total Score:				17											
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

Wetland Condition Assessment Form

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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	

	Condition Category															CI = Total Score/40						
b. Vegetation Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No vegetation stressors present within the AA boundary.			Low Optimal: One vegetation stressor present within the AA boundary.			High Suboptimal: Two vegetation stressors present within the AA boundary.			Low Suboptimal: Three vegetation stressors present within the AA boundary.			High Marginal: Four vegetation stressors present within the AA boundary.				Low Marginal: Five vegetation stressors present within the AA boundary.			Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		

Comments: Maintained pipeline ROW and maintenance road/ATV trail.	a. Invasive Sub-Score:	20	Total Score	0.80
	b. Vegetation Sub-Score:	12	32	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																			
	Optimal					Suboptimal					Marginal						Poor																		
Hydrologic Modification Stressor Presence	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.5														

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal			Marginal			Poor											
Sediment Stressor Presence	<u>High Optimal:</u> No sediment stressors present within the AA boundary.			<u>Low Optimal:</u> One sediment stressor present within the AA boundary.			<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.			<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.			<u>High Marginal:</u> Four sediment stressors present within the AA boundary.			<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	

	Condition Category															CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2

Comments: No stressors identified.	a. Eutrophication Score	20	Total Score:	1.00
	b. Contaminant Score	20	40	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/08/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD077JLM	W028	41.738174	-78.439414	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/10/17	0.17	W029	0.21
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.740056	-78.435178	WD089JLM, PEM wetland	
General Comments: Site disturbed by pipeline construction and maintenance. Small depression confined to ROW with compacted soils. Adjacent forest all upland. PEM wetland in maintained pipeline ROW (0.17 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.04 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.21 acres of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																																			
Scoring:	% ZOI Area:	0%					0%					70%					0%					30%					0%					Total Score:			
	Score:	0					0					13					0					4					0								
	Total Sub-score:	0.00					0.00					9.10					0.00					1.20					0.00						10.30		
Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.																																			

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																	Condition Score				Weighting				Sub-Scores															
																	a. Roadbed 0-100:				17				* (0.67)				11											
																	b. Roadbed 100-300:				17				* (0.33)				6											
																									Total Score:				17											
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40	
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor											
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20	Total Score				0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32				

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	SCORE					20 19 18 17 16					15 14 13 12 11						10 9 8 7 6					5 4 3 2 1														
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:					17					0.85											

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor			CI = Total Score/20								
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17				

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1				
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00					
																b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD077JLM	W029	41.740056	-78.435178	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/07/17	0.33	W031, W031A	1.00

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
T. Malecki, M. Groomer	41.74408	-78.426119	WD078TMM, PFO and PEM wetland

General Comments: Large PEM and PFO wetland complex. Two ephemeral streams occur within the PEM wetland. PFO wetland located on forested hilltop and is fed by multiple seeps that drain into stream at headwaters. PFO wetland occurs in existing pipeline ROW (0.15 acres in ECL) and continues upslope of Project (1.98 acres delineated) beyond ECL. PEM wetland occurs within maintained pipeline ROW (0.18 acres in ECL) and continues downslope of Project (0.10 acres delineated) beyond ECL. Impacts occur within both the PEM and PFO wetland. AA includes 0.33 acres of the proposed impacted area to PEM and PFO wetland, and 0.67 acres of the wetland complex that will not be impacted.

1. Wetland Zone of Influence Condition Index

1. Wetland Zone of Influence Condition Index																																							
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																						
	Optimal					Suboptimal					Marginal					Poor																							
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.													Total Score = SUM(%Areas*Scores)																										
2. Estimate the % area within each condition category. Calculators are provided for you below.																																							
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																							
Scoring:	Condition Category:																																						
	% ZOI Area:					0%					80%					0%					20%					0%					Total Score:								
	Score:					0					12					0					4					0													
	Total Sub-score:					0.00					0.00					9.60					0.00					0.80					0.00					10.40			
																					0.52																		

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Streams and other wetlands occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

2. Roadbed Presence Index																																					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																			
		Optimal					Suboptimal					Marginal					Poor																				
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.83															
											a. Roadbed 0-100:					17					* (0.67)						11														
											b. Roadbed 100-300:					16					* (0.33)						5														
																					Total Score:						17														

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Temporary dirt access road connecting to pipeline ROW.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
											5	4	3	2	1

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											a. Invasive Sub-Score:				
Area includes maintained pipeline ROW and maintenance road/ATV trail.											20				
											b. Vegetation Sub-Score:				
											12				
											Total Score				
											32				
											0.80				

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: Two stressors identified due to culverts, and ROW alteration caused by pipeline maintenance and ATV use.											Score:				
											14				
											0.70				

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: One stressor identified due to ROW maintenance and ATV use.											Score:				
											17				
											0.85				

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
											Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
											Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: No stressors identified.											a. Eutrophication Score				
											20				
											Total Score:				
											40				
											1.00				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.78

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/07/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD078TMM	W031, W031A	41.74408	-78.426119	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Temporary dirt access road connecting to pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	2	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/06/17	0.04	W034	0.35	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.752795	-78.396898	WD071TMM, PSS wetland		

General Comments: PSS wetland located in relic slough within floodplain of stream. Wetland occurs in maintained pipeline ROW (0.04 acres in ECL) and continues downslope of Project (0.31 acres delineated) beyond ECL. AA includes entire 0.35 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20														
	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																			
2. Estimate the % area within each condition category. Calculators are provided for you below.																																		
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																		
Condition Category:																																		
Scoring:	% ZOI Area:	0%				0%				30%				20%				20%				Total Score:												
	Score:	0				0				12				7				4								2								
	Total Sub-score:	0.00				0.00				3.60				1.40				1.20				0.40				6.60								
																				0.33														

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Streams, other wetlands, cleared areas and agricultural land occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

		Condition Categories																		
		Optimal					Suboptimal					Marginal			Poor					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20						
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor					
	High Optimal:		Low Optimal:			High Suboptimal:		Low Suboptimal:			High Marginal:		Low Marginal:				High Poor:		Low Poor:			
	No roadbeds present within 100 - 300 feet of the AA boundary		Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1	
SCORE																						
											Condition Score					Weighting		Sub-Scores				
	a. Roadbed 0-100:										17					* (0.67)		11				
	b. Roadbed 100-300:										14					* (0.33)		5				
															Total Score:					16		0.80

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Temporary dirt access road connecting paved road to pipeline ROW.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40					
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal			Poor								
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.				<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.			<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20		Total Score			0.73
Area includes maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					9		29			

Area includes maintained pipeline ROW and maintenance road/ATV trail.

Cleared area and agricultural land occur in and around wetland.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Two stressors identified due to agriculture, and ROW alteration caused by pipeline maintenance and ATV use.																Score:		14			

Comments: Two stressors identified due to agriculture, and ROW alteration caused by pipeline maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor									
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1			
Comments: No stressors identified.																					a. Eutrophication Score	20	Total Score:		1.00
																					b. Contaminant Score	20	40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/06/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD071TMM	W034	41.752795	-78.396898	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.	1	1	1
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	3		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Temporary dirt access road connecting paved road to pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)	X			
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X		1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/06/17	0.07	W035	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.754615	-78.398383	WD071TMM, PSS and PEM wetland		

General Comments: Large PEM and PSS wetland complex. Two streams occur within the wetland complex. PSS wetlands located within relic slough within floodplain of stream. The PSS wetland (W035) occurs within maintained pipeline ROW (0.05 acres in ECL) and continues upslope of Project (3.30 acres delineated) beyond ECL. The PEM wetland occurs within an access road (0.02 acres in ECL) and continues upslope of Project (1.11 acres delineated) beyond ECL. Impacts occur within both the PEM and PSS wetlands. AA includes 0.07 acres of the proposed impacted area to PEM and PSS wetlands, and 0.93 acres of the wetland complex that will not be impacted.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20														
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																					
Condition Category:																																		
Scoring:	% ZOI Area:	0%				0%				20%				40%				20%				Total Score:												
	Score:	0				0				12				7				4					2											
	Total Sub-score:	0.00				0.00				2.40				1.40				1.60				0.40				5.80								
																				0.29														

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:																																				
Area includes maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score:															20	Total Score					0.73				
											b. Vegetation Sub-Score:															9	29									

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No hydrologic stressors present within the AA boundary.					<u>Low Optimal:</u> One hydrologic stressor present within the AA boundary.					<u>High Suboptimal:</u> Two hydrologic stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three hydrologic stressors present within the AA boundary.					<u>High Marginal:</u> Four hydrologic stressors present within the AA boundary.					<u>Low Marginal:</u> Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.																Score:						17														

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No sediment stressors present within the AA boundary.					<u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.					<u>High Marginal:</u> Four sediment stressors present within the AA boundary.					<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70															
Comments: Two stressors identified due to agriculture, and ROW alteration caused by pipeline maintenance and ATV use.																Score:		14																		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category															CI = Total Score/40									
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor								
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: No stressors identified.																a. Eutrophication Score					20		Total Score:		1.00
																b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/06/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD071TMM	W035, W035A	41.754615	-78.398383	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.	1	1	1
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	3		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Temporary dirt access road connecting paved road to pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)	X			
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/06/17	0.17	W037B, W037C	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.753999	-78.394842	RW068CJLM, PEM and PSS wetlands	
General Comments: Seasonal wet back channel to Potato Creek. PEM and PSS wetland in maintained pipeline ROW (0.17 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (2.28 acres delineated) beyond ECL. Impacts occur only to the PEM and PSS wetland area in the disturbed ROW. AA includes 1.00 acre of PEM and PSS within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																																			
Scoring:	% ZOI Area:	0%					0%					25%					25%					50%					5%					Total Score:			
	Score:	0					0					13					7					4					1								
	Total Sub-score:	0.00					0.00					3.25					1.75					2.00					0.05						7.05		
Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, a stream, agricultural pasture, and a paved road. Adjacent forest has maintained understory.																																			

0.35

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																	Condition Score					Weighting					Sub-Scores													
																	a. Roadbed 0-100:					17					* (0.67)					11								
																	b. Roadbed 100-300:					14					* (0.33)					5								
																											Total Score:					16								
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Paved road within 300 feet of AA,																																								

0.80

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					18	Total Score		0.75	
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	30			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
	SCORE	20	19	18	17	16	15	14	13		12	11		10	9		8	7	6	5	4
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:	17			0.85		

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.77

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/06/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW068CJLM	W037B, W037C	41.753999	-78.394842	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Paved road within 300 feet of AA.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
loja	1								

Total % relative cover of all invasives, collectively on site: 1 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
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calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
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eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/07/17	0.15	W039	0.48	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.7548	-78.395648	WD074TMM, PEM wetland		
General Comments: PEM wetland located in between stream and gas compressor station. Wetland occurs in maintained pipeline ROW (0.15 acres in ECL) and continues upslope of Project (0.33 acres delineated) beyond ECL. AA includes entire 0.48 acres of the PEM wetland.						

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					20%					0%						70%					10%							
	Score:		0					0					12					0						4					2							
	Total Sub-score:		0.00					0.00					2.40					0.00						2.80					0.20					5.40		
Comments: Area includes stream, maintained pipeline ROW with access roads and gas compressor station. Adjacent forest has maintained understory.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Gravel access road to gas compressor station.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																Condition Score					Weighting					Sub-Scores														
																a. Roadbed 0-100:					14					* (0.67)					9									
																b. Roadbed 100-300:					14					* (0.33)					5									
																										Total Score:					14									
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Gravel access road to gas compressor station.																																								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
											5	4	3	2	1

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											a. Invasive Sub-Score: 20				
											b. Vegetation Sub-Score: 12				
											Total Score: 32				
											0.80				

Maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											Score: 17				
											0.85				

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											Score: 14				
											0.70				

Comments: Two stressors identified due to ROW maintenance, ATV use, and cleared area for gas well pad.

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
											Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
											Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											a. Eutrophication Score: 20				
											b. Contaminant Score: 20				
											Total Score: 40				
											1.00				

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.72

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/07/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD074TMM	W039	41.7548	-78.395648	Pipeline access roads and gas compressor station				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	3			100-300 ft.	3		
Road Comments: Dirt access road/atv trail used for pipeline inspection and maintenance. Gravel access road to gas compressor station.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X		
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		2	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/06/17	0.01	W041	0.32
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.754799	-78.3941	WD068JLM, PEM wetland	

General Comments: Seasonal wet back channel to Potato Creek. PEM wetland in maintained pipeline ROW (0.001 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.31 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.32 acre of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.											Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																		Total Score:	
	% ZOI Area:		0%		0%		25%		25%		30%		20%							
	Score:		0		0		13		7		4		1							
	Total Sub-score:		0.00		0.00		3.25		1.75		1.20		0.20		6.40					
0.32																				

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, a stream, agricultural pasture, development, and a paved road. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories											CI = Total Score/20													
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor																	
		<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.										
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1				
<table border="1"> <thead> <tr> <th>Condition Score</th> <th>Weighting</th> <th>Sub-Scores</th> </tr> </thead> <tbody> <tr> <td>a. Roadbed 0-100:</td> <td>17</td> <td>*(0.67)</td> </tr> <tr> <td>b. Roadbed 100-300:</td> <td>12</td> <td>*(0.33)</td> </tr> <tr> <td colspan="2">Total Score:</td> <td>15</td> </tr> </tbody> </table>											Condition Score	Weighting	Sub-Scores	a. Roadbed 0-100:	17	*(0.67)	b. Roadbed 100-300:	12	*(0.33)	Total Score:		15	0.77	
Condition Score	Weighting	Sub-Scores																						
a. Roadbed 0-100:	17	*(0.67)																						
b. Roadbed 100-300:	12	*(0.33)																						
Total Score:		15																						

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Paved road within 300 feet of AA.

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

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3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:																																				
Maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score:										18	Total Score					0.75									
											b. Vegetation Sub-Score:										12	30														

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal				Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																CI = Total Score/20									
	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17								

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/06/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD068JLM	W041	41.754799	-78.3941	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	5		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Paved road within 300 feet of AA.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
loja	1								

Total % relative cover of all invasives, collectively on site: 1 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/06/17	0.01	W042	0.02

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
J. Miner, C. Maier, M. Groomer	41.754463	-78.393417	WD070JLM, PEM wetland

General Comments: Small depression within a dirt road, intercepting drainage. Disturbed, base soil present due to disturbances. PEM wetland in maintained pipeline ROW (0.01 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.01 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.02 acre of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Condition Category																																		
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																		
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																		
Scoring:	Condition Category:																		Total Score:															
	% ZOI Area:		0%				0%				25%				25%																			
	Score:		0				0				13				7																			
	Total Sub-score:		0.00				0.00				3.25				1.75																			
		0.00				0.00				3.25				1.75				1.20				0.20				6.40								
0.32																																		

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, a stream, agricultural pasture, development, and a paved road. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20													
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor															
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									
											Condition Score					Weighting		Sub-Scores											
											a. Roadbed 0-100:					17		* (0.67)		11									
											b. Roadbed 100-300:					12		* (0.33)		4									
																		Total Score:		15									
																					0.77								

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Paved road within 300 feet of AA.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										15	Total Score					0.68									
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12	27														

Comments:

Maintained pipeline ROW and maintenance road/ATV trail.

a. Invasive Sub-Score:	15	Total Score
b. Vegetation Sub-Score:	12	27

0.68

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal				Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.		High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

Score: 17

0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17				

Comments: One stressor identified due to ROW maintenance and ATV use.

Score: 17

0.85

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40														
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor															
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
Comments: No stressors identified.											a. Eutrophication Score					20					Total Score:					1.00					
											b. Contaminant Score					20					40										

Comments: No stressors identified.

a. Eutrophication Score	20	Total Score:
b. Contaminant Score	20	40

1.00

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.74

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/06/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD070JLM	W042	41.754463	-78.393417	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	5		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Paved road within 300 feet of AA.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar		5							

Total % relative cover of all invasives, collectively on site: 5 %

Comments:

Common Invasives/Aggressives List

<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>	<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/06/17	0.05	W045	0.14
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.754627	-78.387443	RW072AJLM, PEM wetland	
General Comments: Adjacent to stream. PEM wetland in maintained pipeline ROW (0.05 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.09 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.14 acres of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category												CI = Total Score/20							
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.													Total Score = SUM(%Areas*Scores)							
2. Estimate the % area within each condition category. Calculators are provided for you below.																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																				
Scoring:	Condition Category:																		Total Score:	
	% ZOI Area:		0%		0%		60%		10%		30%		0%							
	Score:		0		0		13		7		4		0							
	Total Sub-score:		0.00		0.00		7.80		0.70		1.20		0.00		9.70				0.49	

Comments: Area includes maintained pipeline ROW with access road/ATV trail, another wetland, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories												CI = Total Score/20							
	Optimal		Suboptimal		Marginal		Poor													
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.		High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories													CI = Total Score/20							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor													
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary		Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.		High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.		High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.		High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Condition Score													Weighting		Sub-Scores					
a. Roadbed 0-100:													17	* (0.67)		11				
b. Roadbed 100-300:													17	* (0.33)		6				
Total Score:															17					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

0.85

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										20		Total Score		0.80											
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12		32													

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal				Marginal				Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																CI = Total Score/20									
	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17								

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/06/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW072AJLM	W045	41.754627	-78.387443	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/07/17	0.01	W049	0.03
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.757017	-78.379114	RW073DJLM, PEM wetland	
General Comments: Small seep under forest canopy and in ROW. Hillside slumps, seep forms a narrow wet swale. PEM wetland in maintained pipeline ROW (0.001 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.02 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.03 acres of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index																							
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																						
	Optimal					Suboptimal			Marginal			Poor											
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)											
Scoring:	Condition Category:																		Total Score:				
	% ZOI Area:		0%		0%		70%		0%		30%		0%										
	Score:		0		0		13		0		4		0										
	Total Sub-score:		0.00		0.00		9.10		0.00		1.20		0.00		10.30								
Comments: Area includes maintained pipeline ROW with access road/ATV trail and other wetlands. Adjacent forest has maintained understory.																							

2. Roadbed Presence Index																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																						
	Optimal					Suboptimal			Marginal			Poor											
	High Optimal: No roadbeds present within 100 feet of the AA boundary Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.			Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																							

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)																							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																						
	Optimal					Suboptimal			Marginal			Poor											
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.			Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
												Condition Score			Weighting			Sub-Scores					
												a. Roadbed 0-100:			17			* (0.67)			11		
												b. Roadbed 100-300:			17			* (0.33)			6		
																		Total Score:			17		
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																							

CI = Total Score/20

0.52

CI = Total Score/20

0.85

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										20		Total Score		0.80											
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12		32													

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal					Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score: 17					

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																CI = Total Score/20									
	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17								

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/07/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW073DJLM	W049	41.757017	-78.379114	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/07/17	0.29	W051	0.56

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
J. Miner, C. Maier, M. Groomer	41.757017	-78.379114	RW073EJLM, PEM wetland

General Comments: Small seep under forest canopy and in ROW. Hillside slumps, seep forms a narrow wet swale. PEM wetland in maintained pipeline ROW (0.29 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.27 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.56 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)																			
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																																		
	% ZOI Area:		0%				0%				60%				5%				30%				5%				Total Score:								
	Score:		0				0				13				7				4				1												
	Total Sub-score:		0.00				0.00				7.80				0.35				1.20				0.05				9.40								
0.47																																			

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										20	Total Score					0.80									
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12	32														

Comments:

Maintained pipeline ROW and maintenance road/ATV trail.

a. Invasive Sub-Score:	20	Total Score	0.80
b. Vegetation Sub-Score:	12	32	

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

Score: 17

0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.															Score: 17																					

Comments: One stressor identified due to ROW maintenance and ATV use.

Score: 17

0.85

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Comments: No stressors identified.

a. Eutrophication Score	20	Total Score:	1.00
b. Contaminant Score	20	40	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.80

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/07/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW073EJLM	W051	41.757017	-78.379114	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/07/17	0.05	W054	0.07
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.756895	-78.374947	WD075JLM, PEM wetland	

General Comments: Wetland connected to perennial stream and within floodplain. PEM wetland in maintained pipeline ROW (0.05 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.02 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.07 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category												CI = Total Score/20							
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)							
Scoring:	Condition Category:																Total Score:			
	% ZOI Area:		0%		0%		50%		5%		40%		5%							
	Score:		0		0		13		7		4		1							
	Total Sub-score:		0.00		0.00		6.50		0.35		1.60		0.05		8.50		0.43			

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, streams, and residential development. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories												CI = Total Score/20							
	Optimal		Suboptimal		Marginal		Poor													
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories													CI = Total Score/20												
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor																		
		<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
<table border="1"> <thead> <tr> <th>Condition Score</th> <th>Weighting</th> <th>Sub-Scores</th> </tr> </thead> <tbody> <tr> <td>a. Roadbed 0-100:</td> <td>17</td> <td>*(0.67)</td> </tr> <tr> <td>b. Roadbed 100-300:</td> <td>17</td> <td>*(0.33)</td> </tr> <tr> <td colspan="2">Total Score:</td> <td>17</td> </tr> </tbody> </table>													Condition Score	Weighting	Sub-Scores	a. Roadbed 0-100:	17	*(0.67)	b. Roadbed 100-300:	17	*(0.33)	Total Score:		17	0.85
Condition Score	Weighting	Sub-Scores																							
a. Roadbed 0-100:	17	*(0.67)																							
b. Roadbed 100-300:	17	*(0.33)																							
Total Score:		17																							

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:																										0.80										
Maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score: 20										Total Score															
											b. Vegetation Sub-Score: 12										32															

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																CI = Total Score/20									
	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17								

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.80

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/07/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD075JLM	W054	41.756895	-78.374947	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
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arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
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calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/07/17	0.15	W055	0.46	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
T. Malecki, M. Groomer	41.757137	-78.372617	WD074TMM, PEM wetland

General Comments: PEM wetland connected to perennial stream. Wetland occurs in maintained pipeline ROW (0.01 acres in ECL), continues upslope and downslope of Project (0.31 acres delineated) beyond ECL. AA includes entire 0.46 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

1. Wetland Zone of Influence Condition Index																																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																							
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																																		
	% ZOI Area:		0%				0%				20%				40%				20%				Total Score:												
	Score:		0				0				12				7				4				1												
	Total Sub-score:		0.00				0.00				2.40				1.40				1.60				0.20				5.60								
																					0.28														

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
											5	4	3	2	1

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											a. Invasive Sub-Score:				
Maintained pipeline ROW											b. Vegetation Sub-Score:				
											20				
											12				
											Total Score				
											32				
											0.80				

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: Within ROW alteration caused by pipeline maintenance											Score:				
											17				
											0.85				

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: One stressor identified due to ROW maintenance											Score:				
											17				
											0.85				

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
											Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
											Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: No stressors identified.											a. Eutrophication Score				
											20				
											Total Score:				
											40				
											1.00				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/07/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD074TMM	W055	41.757137	-78.372617					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.	1	1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		
Road Comments: Maintained pipeline ROW, dirt road leading to well pad, and paved road.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/07/17	0.01	W056	0.02	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.757105	-78.372081	WD074TMM, PEM wetland		

General Comments: PEM wetland located between gas compressor station and perennial stream. Wetland occurs in maintained pipeline ROW (0.001 acres in ECL), continues upslope of Project (0.01 acres delineated) beyond ECL. AA includes entire 0.02 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20									
	Optimal					Suboptimal					Marginal					Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																
Scoring:	Condition Category:																												
	% ZOI Area:		0%				0%				20%				20%				20%										
	Score:		0				0				12				7				4										
	Total Sub-score:		0.00				0.00				2.40				1.40				1.60				0.20				5.60		
																				0.28									

Comments: Area includes maintained pipeline ROW with access road/ATV trail, another wetland, a stream, development, and a paved road. Adjacent forest has maintained understory.

2. Roadbed Presence Index

		Condition Categories																		
		Optimal					Suboptimal					Marginal			Poor					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories																				CI = Total Score/20																				
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.						High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1																			
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					17					* (0.67)					11															
											b. Roadbed 100-300:					13					* (0.33)					4					0.78										
																					Total Score:					16															

Comments: Dirt road leading to well pad and paved road within 300 feet.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40							
b. Vegetation Stressor Presence	Optimal			Suboptimal				Marginal				Poor											
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.	<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.		<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.	<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.		<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.	<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.		Greater than five vegetation stressors present within the AA boundary.													
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1		
SCORE																							
Comments:																a. Invasive Sub-Score:				20	Total Score		0.80
Maintained pipeline ROW																b. Vegetation Sub-Score:				12	32		

Comments:
Maintained pipeline ROW

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal			Marginal			Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance																Score:		17			

Comments: Within ROW alteration caused by pipeline maintenance

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal					Suboptimal				Marginal			Poor									
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.		High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.			Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance																Score:			17			0.85

Comments: One stressor identified due to ROW maintenance

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40										
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor															
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.															
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1									
Comments: No stressors identified.																a. Eutrophication Score					20					Total Score:					1.00
																b. Contaminant Score					20					40					

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/07/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD074TMM	W056	41.757105	-78.372081					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.	1	1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		
Road Comments: Maintained pipeline ROW, dirt road leading to well pad, and paved road.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			X
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/03/18	0.12	W059A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, M. Groomer		41.755869	-78.349029	WD211JLM, PEM and PFO wetlands		

General Comments: PEM wetland channelized across ROW. Broad channel with 6 inches of surface water. Channel drains through culvert. PEM wetland in maintained pipeline ROW (0.12 acres in ECL) and continues beyond existing ROW, upslope and downslope of Project (0.12 acres delineated) beyond ECL. Connected to PFO wetland downslope of the Project (1.27 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.24 acres of PEM and 0.76 acres of PFO within and beyond the Project area.

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.											Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																			
	% ZOI Area:		0%		40%		20%		20%		20%		0%							
	Score:		0		13		9		7		4		0							
	Total Sub-score:		0.00		5.20		1.80		1.40		0.80		0.00		9.20					
0.46																				

Comments: Area includes maintained pipeline ROW with access road/ATV trail, another access road, wetlands, and a ditch. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories											CI = Total Score/20												
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor																
		<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
<table border="1"> <thead> <tr> <th>Condition Score</th> <th>Weighting</th> <th>Sub-Scores</th> </tr> </thead> <tbody> <tr> <td>a. Roadbed 0-100:</td> <td>14</td> <td>*(0.67)</td> </tr> <tr> <td>b. Roadbed 100-300:</td> <td>14</td> <td>*(0.33)</td> </tr> <tr> <td colspan="2">Total Score:</td> <td>14</td> </tr> </tbody> </table>											Condition Score	Weighting	Sub-Scores	a. Roadbed 0-100:	14	*(0.67)	b. Roadbed 100-300:	14	*(0.33)	Total Score:		14	0.70
Condition Score	Weighting	Sub-Scores																					
a. Roadbed 0-100:	14	*(0.67)																					
b. Roadbed 100-300:	14	*(0.33)																					
Total Score:		14																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																									
a. Invasive Species Presence	Condition Category																								
	Optimal					Suboptimal					Marginal					Poor									
	High Optimal: No invasives present. Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				Low Marginal: >30% but less than 50% of the total AA contains invasive species.				Greater than 50% of the total AA contains invasive species.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: No Invasive Species identified in wetland AA.																									
b. Vegetation Stressor Presence	Condition Category														CI = Total Score/40										
	Optimal					Suboptimal					Marginal					Poor									
	High Optimal: No vegetation stressors present within the AA boundary. Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary. Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary. Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: Maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score:				20		Total Score				0.80				
											b. Vegetation Sub-Score:				12		32								
4. Hydrologic Modification Index																									
Hydrologic Modification Stressor Presence	Condition Category														CI = Total Score/20										
	Optimal					Suboptimal					Marginal					Poor									
	High Optimal: No hydrologic stressors present within the AA boundary. Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary. Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary. Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Culvert draining wetland to ditch.											Score:				14				0.70						
5. Sediment Stressor Index																									
Sediment Stressor Presence	Condition Category														CI = Total Score/20										
	Optimal					Suboptimal					Marginal					Poor									
	High Optimal: No sediment stressors present within the AA boundary. Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary. Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary. Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: One stressor identified due to ROW maintenance and ATV use.											Score:				17				0.85						
6. Water Quality Stressor Index																									
a. Eutrophication Stressor Presence	Condition Category																								
	Optimal					Suboptimal					Marginal					Poor									
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: No stressors identified.																									
b. Contaminant / Toxicity Stressor Presence	Condition Category														CI = Total Score/40										
	Optimal					Suboptimal					Marginal					Poor									
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:				1.00				
											b. Contaminant Score				20		40								
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																Overall Condition Index:				0.75					

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/03/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD211JLM	W059A	41.755869	-78.349029	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/03/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/03/18	0.57	W061	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, M. Groomer		41.758834	-78.341033	WD209JLM, PEM wetland		

General Comments: PEM wetland in maintained pipeline ROW (0.57 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.50 acres delineated) beyond ECL. Connected to PFO wetland downslope of the Project (0.85 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 1.00 acre of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category															CI = Total Score/20																					
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal						Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.															Total Score = SUM(%Areas*Scores)																						
Scoring:	Condition Category:																																				
	% ZOI Area:		0%					50%					10%					20%					20%					0%					Total Score:				
	Score:		0					13					9					7					4					0									
	Total Sub-score:		0.00					6.50					0.90					1.40					0.80					0.00					9.60				
																						0.48															

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:																																				
Maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score:					13					Total Score					0.63										
											b. Vegetation Sub-Score:					12					25															

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20										
	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Two hydrologic stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17								

5. Sediment Stressor Index

		Condition Category															CI = Total Score/20														
Sediment Stressor Presence	Optimal					Suboptimal					Marginal					Poor															
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85										
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17													

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40	
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.77

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/03/18	J. Miner, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD209JLM	W061	41.758834	-78.341033	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/03/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
aggi2		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/02/17	0.45	W066A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, F. Davis, M. Groomer		41.760518	-78.337248	WD038JLM, PEM and PFO wetland		

General Comments: Small depressions on hilltop. Relatively indistinct and isolated depression/flat on hilltop. Wetland is disturbed in ROW by compaction and extends into forest. PEM wetland in maintained pipeline ROW (0.45 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (1.63 acres delineated) beyond ECL. In between and connected to two PFO wetlands upslope and downslope of the Project (1.16 acres delineated) beyond ECL. Impacts occur only to the PEM and PFO wetland area in the disturbed ROW. AA includes 0.59 acres of PEM and PFO within the Project area and 0.41 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																					
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																				Total Score:															
	% ZOI Area:		0%			60%			10%			10%			20%			0%																		
	Score:		0			13			9			7			4			0																		
	Total Sub-score:		0.00			7.80			0.90			0.70			0.80			0.00						10.20												
																					0.51															

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: <5% of the total AA contains invasive species.					High Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: Maintained pipeline ROW and maintenance road/ATV trail.

a. Invasive Sub-Score:	20	Total Score
b. Vegetation Sub-Score:	12	32

0.80

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

Score:	17

0.85

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: One stressor identified due to ROW maintenance and ATV use.

Score:	17

0.85

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

a. Eutrophication Score	20	Total Score:
b. Contaminant Score	20	40

1.00

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/02/17	J. Miner, F. Davis, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD038JLM	W066A	41.760518	-78.337248	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/02/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/02/17	0.02	W067	0.04	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, F. Davis, M. Groomer		41.763338	-78.32955	WD037JLM, PEM wetland		

General Comments: Wetland restricted to floodplain/valley bottom of small creek. PEM wetland in maintained pipeline ROW (0.02 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.02 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.04 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20						
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal			Marginal			Poor														
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.														Total Score = SUM(%Areas*Scores)											
Scoring:	Condition Category:																				Total Score:					
	% ZOI Area:		0%			70%			0%			10%			20%			0%								
	Score:		0			13			0			7			4			0								
	Total Sub-score:		0.00			9.10			0.00			0.70			0.80			0.00			10.60			0.53		

Comments: Area includes maintained pipeline ROW with access road/ATV trail and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																							
	Optimal					Suboptimal					Marginal					Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories																			CI = Total Score/20																						
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																										
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but less than or equal to 4.					<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																						
											Condition Score					Weighting				Sub-Scores																						
											a. Roadbed 0-100:					17					* (0.67)				11																	
											b. Roadbed 100-300:					17					* (0.33)				6																	
																					Total Score:				17				0.85													

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:																																				
Maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score:					20					Total Score					0.80										
											b. Vegetation Sub-Score:					12					32															

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																			
	Optimal					Suboptimal					Marginal						Poor																		
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:					17					0.85									

5. Sediment Stressor Index

		Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal					Poor						
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17				

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40		
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor						
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:				1.00
											b. Contaminant Score					20		40				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/02/17	J. Miner, F. Davis, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD037JLM	W067	41.763338	-78.32955	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/02/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
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calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
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eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/02/17	0.02	W070	0.06	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.766956	-78.314731	WD048TMM, PEM wetland		
General Comments: PEM wetland located in floodplain and abutts stream. Wetland occurs in maintained pipeline ROW (0.02 acres in ECL) and continues downslope of Project (0.04 acres delineated) beyond ECL. AA includes entire 0.06 acres of the PEM wetland.						

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					70%					0%						30%					0%							
	Score:		0					0					12					0						4					0							
	Total Sub-score:		0.00					0.00					8.40					0.00						1.20					0.00					9.60		
Comments: Area includes stream, maintained pipeline ROW with access roads/ATV trail. Adjacent forest has maintained understory.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Permanent dirt access road intersecting maintained pipeline ROW.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																Condition Score					Weighting					Sub-Scores														
																a. Roadbed 0-100:					13					* (0.67)					9									
																b. Roadbed 100-300:					13					* (0.33)					4									
																					Total Score:					13														
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Permanent dirt access road intersecting maintained pipeline ROW.																																								

0.65

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal			Poor							
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.				<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.			<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20		Total Score		0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12		32		

Maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal				Marginal			Poor								
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20								
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17			0.85				

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor									
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1			
Comments: No stressors identified.																a. Eutrophication Score					20		Total Score:		1.00
																b. Contaminant Score					20		40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.77

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/02/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD048TMM	W070	41.766956	-78.314731	Pipeline access roads				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Permanent dirt access road intersecting maintained pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/02/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/02/17	0.02	W071	0.17	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
T. Malecki, M. Groomer	41.766819	-78.314517	WD048TMM, PEM wetland

General Comments: PEM wetland located in floodplain and abutts stream. Wetland occurs in maintained pipeline ROW (0.02 acres in ECL) and continues downslope of Project (0.15 acres delineated) beyond ECL. AA includes entire 0.17 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

1. Wetland Zone of Influence Condition Index																																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																							
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																																		
	% ZOI Area:		0%				0%				70%				0%				30%				0%				Total Score:								
	Score:		0				0				12				0				4				0												
	Total Sub-score:		0.00				0.00				8.40				0.00				1.20				0.00				9.60								
CI = Total Score/20																																			
0.48																																			

2. Roadbed Presence Index

2. Roadbed Presence Index																																					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																			
		Optimal					Suboptimal					Marginal					Poor																				
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Permanent dirt access road intersecting maintained pipeline ROW.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.65															
											a. Roadbed 0-100:					13					* (0.67)						9														
											b. Roadbed 100-300:					13					* (0.33)						4														
																					Total Score:						13														

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Permanent dirt access road intersecting maintained pipeline ROW.

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/02/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD048TMM	W071	41.766819	-78.314517	Pipeline access roads				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Permanent dirt access road intersecting maintained pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/02/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.01	W075	0.29	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.787011	-78.272842	WD061TMM, PEM wetland		

General Comments: PEM wetland located in inactive agricultural field at toe of slope between terraced field and drains into an ephemeral stream. Wetland occurs in recently mowed site (0.01 acres in ECL) and continues upslope of Project (0.28 acres delineated) beyond ECL. AA includes entire 0.29 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																		CI = Total Score/20																	
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																							
Condition Category:																																				
Scoring:	% ZOI Area:	0%				0%				10%				0%				90%				0%				Total Score:										
	Score:	0				0				12				0				4				0														
	Total Sub-score:	0.00				0.00				1.20				0.00				3.60				0.00				4.80										
																					0.24															

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
											5	4	3	2	1

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											a. Invasive Sub-Score:				
AA recently mowed and located in inactive agricultural field.											b. Vegetation Sub-Score:				
											20				
											Total Score				
											17				
											37				
											0.93				

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: No stressors identified.											Score:				
											20				
											1.00				

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: No stressors identified.											Score:				
											20				
											1.00				

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
											Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
											Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: No stressors identified.											a. Eutrophication Score				
											20				
											Total Score:				
											20				
											40				
											1.00				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.84

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD061TMM	W075	41.787011	-78.272842					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	4		
Road Comments: Dirt road leading to residential development and one paved road on edge of ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)				X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)				X
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		1		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)				X
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		0		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:				X
Total Number:		0		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

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Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.03	W076	0.05	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.787781	-78.271437	WD062TMM, PEM wetland		

General Comments: PEM wetland located in floodplain. Adjacent to W077, forest with maintained understory, and in active agricultural field. Wetland occurs in inactive agricultural field and on edge of forest (0.03 acres in ECL) and continues upslope of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.05 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.											Total Score = SUM(%Areas*Scores)																									
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					30%					0%						70%					0%							
	Score:		0					0					12					0						4					0							
	Total Sub-score:		0.00					0.00					3.60					0.00						2.80					0.00					6.40		
Comments: Area includes stream, other wetlands, and inactive agricultural field. Adjacent forest has maintained understory.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: No roadbeds present within 0-100 feet of AA.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
											Condition Score					Weighting					Sub-Scores																			
											a. Roadbed 0-100:					20					* (0.67)					13														
											b. Roadbed 100-300:					17					* (0.33)					6														
																					Total Score:					19														
Comments: Dirt road leading to residential development on edge of ZOI.																																								

0.95

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					13	Total Score		0.75	
AA located in inactive agricultural field.											b. Vegetation Sub-Score:					17	30			

AA located in inactive agricultural field.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal		Marginal			Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00
Comments: No stressors identified.																Score:		20			

Comments: No stressors identified.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00	
Comments: No stressors identified.																Score:		20				

Comments: No stressors identified.

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.84

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD062TMM	W076	41.787781	-78.271437					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	2		
Road Comments: Dirt road leading to residential development on edge of ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		1	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)			X
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		0	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		0	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
romu		10%							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/05/17	0.06	W077	0.45
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.787608	-78.271007	WD062TMM, PSS/PEM wetland	

General Comments: PSS/PEM wetland located in floodplain. Wetland has man-made features influencing it including culvert and artificial bed and bank features. Adjacent to W076, forest with maintained understory, and in active agricultural field. Wetland occurs in inactive agricultural field and on edge of forest (0.03 acres in ECL) and continues upslope of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.05 acres of the PSS/PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20								
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor												
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.										
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1							
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)															
Scoring:	Condition Category:																											
	% ZOI Area:		0%				0%				60%				0%				30%				10%				Total Score:	
	Score:		0				0				12				0				4				1					
	Total Sub-score:		0.00				0.00				7.20				0.00				1.20				0.10				8.50	
																					0.43							

Comments: Area includes stream, other wetlands, and inactive agricultural field. Adjacent forest has maintained understory. Highway, railroad, dirt road, and residential development within 300 feet of AA.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: No roadbeds present within 0-100 feet of AA.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.85															
											a. Roadbed 0-100:					20					* (0.67)						13														
											b. Roadbed 100-300:					11					* (0.33)						4														
																					Total Score:						17														

Comments: Highway, railroad, and dirt road leading to residential development on edge of ZOI.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

		Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal				Poor						
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.		<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.			<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.		<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.		<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.		Greater than five vegetation stressors present within the AA boundary.						
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2
Comments:																				
Portion of AA located in maintained pipeline ROW.											a. Invasive Sub-Score:					13		Total Score		0.63
											b. Vegetation Sub-Score:					12		25		

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.		High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Two stressors identified due to culverts and portion of AA in maintained pipeline ROW.																Score:		14			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.		High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00
Comments: No stressors identified.																Score:	20				

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.77

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD062TMM	W077	41.787608	-78.271007					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.	1	2	2
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	6		
Road Comments: Highway, railroad, and dirt road leading to residential development on edge of ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	2	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		0	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
romu		10%							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.01	W078	0.08	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.788483	-78.270692	WD064TMM, PEM wetland		

General Comments: PEM wetland located in floodplain of perennial stream. Adjacent to W077 and W080. Wetland occurs on edge of maintained pipeline ROW and forest with maintained understory (0.01 acres in ECL) and continues upslope of Project (0.08 acres delineated) beyond ECL. AA includes entire 0.08 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20	
	Optimal					Suboptimal					Marginal					Poor					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)								
Condition Category:																					
Scoring:	% ZOI Area:	0%				0%		60%			0%			20%			20%		Total Score:		
	Score:	0				0		12			0			4			1				
	Total Sub-score:	0.00				0.00		7.20			0.00			0.80			0.20		8.20		0.41

Comments: Area includes stream, other wetlands, and inactive agricultural field. Adjacent forest has maintained understory. Highway, railroad, and development within 300 feet of AA.

2. Roadbed Presence Index

		Condition Categories																				
		Optimal					Suboptimal					Marginal					Poor					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary		<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.			<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No roadbeds present within 0-100 feet of AA.

	Condition Categories																			CI = Total Score/20																			
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																							
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
																					0.85																		
															Condition Score					Weighting				Sub-Scores															
a. Roadbed 0-100:															20					* (0.67)				13															
b. Roadbed 100-300:															11					* (0.33)				4															
																				Total Score:				17				0.85											

Comments: Highway and dirt road leading to residential development on edge of ZOI.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																														
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor														
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					8					Total Score					0.63										
AA located near maintained pipeline ROW and forest with maintained understory.											b. Vegetation Sub-Score:					17					25															

4. Hydrologic Modification Index

4. Hydrologic Modification Index																										
Hydrologic Modification Stressor Presence	Condition Category																			CI = Total Score/20						
	Optimal					Suboptimal				Marginal				Poor												
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.				High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.							Greater than five hydrologic stressors present within the AA boundary.					
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments: AA located near maintained pipeline ROW and forest with maintained understory.																	Score:			17			0.85			

5. Sediment Stressor Index

		Condition Category															CI = Total Score/20									
Sediment Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00					
Comments: No stressors identified.																Score:		20								

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category															CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal				Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.79

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD064TMM	W078	41.788483	-78.270692					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.	1	2	2
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	6		
Road Comments: Highway, railroad, dirt road, and development within 300 feet of AA.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)			X	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		1		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:			X	
Total Number:		0		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar			30%						

Total % relative cover of all invasives, collectively on site: 30 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/05/17	0.01	W080, Pond 07	0.16
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.788357	-78.270172	WD064TMM, PEM wetland and Pond 07	

General Comments: PEM wetland located in floodplain between perennial stream and railroad tracks. Intermittent stream runs through wetland and connects to perennial stream and pond. Beaver activity present creating pond. Pond takes up about 25 percent of the wetland. Wetland adjacent to W078, W079, W081, and W082. Wetland and pond occur on edge of maintained pipeline ROW and forest with maintained understory (0.01 acres in ECL) and continues downslope of Project (0.15 acres delineated) beyond ECL. AA includes 0.16 acres of the PEM wetland and pond.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																																			
Scoring:	% ZOI Area:	0%					0%					50%					0%					20%					30%					Total Score:			
	Score:	0					0					12					0					4					1								
	Total Sub-score:	0.00					0.00					6.00					0.00					0.80					0.30						7.10		
Comments: Area includes streams, other wetlands, and maintained pipeline ROW. Adjacent forest has maintained understory. Highway, railroad, and development within 300 feet of AA.																																			

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20															
	Optimal				Suboptimal				Marginal				Poor																			
	High Optimal: No roadbeds present within 100 feet of the AA boundary				Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												
Comments: Railroad within 100 feet of AA.																																

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20															
	Optimal				Suboptimal				Marginal				Poor																			
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary				Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												
																	Condition Score				Weighting				Sub-Scores							
																	a. Roadbed 0-100:				16				* (0.67)				11			
																	b. Roadbed 100-300:				9				* (0.33)				3			
																									Total Score:				14			
Comments: Highway, railroad, dirt road, gravel road, and development within 300 feet of AA.																																

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																CI = Total Score/20											
	Optimal				Suboptimal				Marginal				Poor															
	High Optimal: No invasives present.				Low Optimal: <5% of the total AA contains invasive species.				High Suboptimal: >5% but less than 10% of the total AA contains invasive species.				Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.				High Marginal: >20% but less than 30% of the total AA contains invasive species.				Low Marginal: >30% but less than 50% of the total AA contains invasive species.				> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1								
Comments: One Invasive Species identified in wetland AA.																												
Condition Category																												

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

b. Vegetation Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40												
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:		8	Total Score							
AA located in forest with maintained understory.											b. Vegetation Sub-Score:		17	25						0.63	

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: AA located in forest with maintained understory.											Score:		17						0.85	

5. Sediment Stressor Index

Sediment Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											Score:		20						1.00	

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No eutrophication stressors present within the AA boundary.	One eutrophication stressors present within the AA boundary.	Two eutrophication stressors present within the AA boundary.	Three eutrophication stressors present within the AA boundary.	Greater than five eutrophication stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.																				

b. Contaminant / Toxicity Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40												
	No contaminant / toxicity stressors present within the AA boundary.	One contaminant / toxicity stressors present within the AA boundary.	Two contaminant / toxicity stressors present within the AA boundary.	Three contaminant / toxicity stressors present within the AA boundary.	Greater than five contaminant / toxicity stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score		20	Total Score:							
											b. Contaminant Score		20	40						1.00	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.75

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD064TMM	W080, Pond 07	41.788357	-78.270172	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.	1	1	1
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	7		

Road Comments: Highway, railroad, dirt road, and development within 300 feet of AA.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)			X	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		1		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:			X	
Total Number:		0		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? **YES** NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar			30%						

Total % relative cover of all invasives, collectively on site: 30 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.13	W083	0.16	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.790866	-78.266353	WD066JLM, PEM wetland		

General Comments: Wetland located within the swale adjacent to stream. Seeps contribute to intermittent channel. Site impacted by hoof shearing and cattle grazing, creating micro hummocks/tussocks. PEM wetland in grazed pasture (0.13 acres in ECL). Impacts occur only to the PEM wetland area in the Project area. AA includes entire 0.16 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence Condition Index																				CI = Total Score/20																
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																			
	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%				30%				0%				60%				10%																	
	Score:		0				13				0				0				4								1									
	Total Sub-score:		0.00				3.90				0.00				0.00				2.40								0.10				6.40					
																				0.32																

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																							
		Optimal					Suboptimal					Marginal					Poor																								
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
		SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: Dirt road to residential development within 100 feet of wetland.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
																Condition Score					Weighting					Sub-Scores															
																a. Roadbed 0-100:					17					* (0.67)					11										
																b. Roadbed 100-300:					14					* (0.33)					5										
																										Total Score:					16										
																															0.80										

Comments: Dirt road to residential development and paved road within 300 feet of wetland.

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:																																				
Grazed cattle pasture											a. Invasive Sub-Score: 20 Total Score															0.73										
											b. Vegetation Sub-Score: 9 29																									

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20						
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: Grazed cattle pasture															Score:			17			0.85	

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20											
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.						High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1						
SCORE																Score:					17					0.85	
Comments: One stressor identified due to pasture																											

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD066JLM	W083	41.790866	-78.266353	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		

Road Comments: Dirt road to residential development within 100 feet and paved road within 300 feet of wetland.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)	X			
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X		1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0%

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.01	W082	0.15	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.788754	-78.269234	WD065TMM, PEM wetland		

General Comments: PEM wetland located in meadow at toe of slope, and is connected to a ditch (0.01 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes entire 0.15 acre of PEM wetland. Wetland delineated as 0.15 acres and impacts are 0.000351 acres (impact size rounded up for form).

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																				CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																							
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.						Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1																			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																							
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																							
Condition Category:																																							
Scoring:		% ZOI Area:			0%					15%					5%					10%					30%					40%					Total Score:				
		Score:			15					12					9					7					4					1									
		Total Sub-score:			0.00					1.80					0.45					0.70					1.20					0.40					4.55				
																				0.23																			

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																																																																																																				
		Optimal					Suboptimal					Marginal							Poor																																																																																																			
		High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.																																																																																																	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																	
Comments: Existing ROW and paved roads present.																																																																																																																						
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)		Condition Categories															CI = Total Score/20																																																																																																					
		Optimal					Suboptimal					Marginal							Poor																																																																																																			
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary		Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.																																																																																																	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																	
<table><tr><td colspan="12"></td><td colspan="3">Condition Score</td><td colspan="3">Weighting</td><td colspan="4">Sub-Scores</td></tr><tr><td colspan="12"></td><td colspan="3">a. Roadbed 0-100:</td><td colspan="3">9</td><td colspan="3">* (0.67)</td><td colspan="4">6</td></tr><tr><td colspan="12"></td><td colspan="3">b. Roadbed 100-300:</td><td colspan="3">9</td><td colspan="3">* (0.33)</td><td colspan="4">3</td></tr><tr><td colspan="12"></td><td colspan="3"></td><td colspan="3"></td><td colspan="3">Total Score:</td><td colspan="4">9</td></tr></table>																																		Condition Score			Weighting			Sub-Scores																a. Roadbed 0-100:			9			* (0.67)			6																b. Roadbed 100-300:			9			* (0.33)			3																						Total Score:			9			
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																		Total Score:			9																																																																																																	
0.45																																																																																																																						

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No invasives present.		Low Optimal: <5% of the total AA contains invasive species.			High Suboptimal: >5% but less than 10% of the total AA contains invasive species.		Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.			High Marginal: >20% but less than 30% of the total AA contains invasive species.		Low Marginal: >30% but less than 50% of the total AA contains invasive species.			> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No Invasive Species identified in wetland AA.																				
b. Vegetation	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40
SCORE	20 19	18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

Comments:	a. Invasive Sub-Score:		20	Total Score	0.73
Maintained pipeline ROW, grazed pasture, residential areas that are mowed and maintained.	b. Vegetation Sub-Score:		9	29	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.55
Comments: Maintenance on pipeline ROW, culverts and ditches, runoff from road.																Score:		11			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor							
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.							
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1	
Comments: No stressors identified.						a. Eutrophication Score														20	Total Score:		1.00
						b. Contaminant Score														20	40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.63

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD065TMM	W082	41.788754	-78.269234	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	2	2	4	100-300 ft.	2	2	4
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	8			100-300 ft.	8		

Road Comments: Existing ROW and paved roads present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)	X			
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods	X	3		
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	8		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		3		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.10	W086	0.10	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.792551	-78.264545	WD066JLM, PEM wetland		

General Comments: PEM wetland in grazed pasture and is connected to ephemeral stream (0.10 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes entire 0.10 acre of PEM wetland. Wetland delineated as 0.07 acres and impacts are 0.06 acres (impact size and AA size rounded for form).

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20							
	Optimal					Suboptimal			Marginal			Poor											
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)										
Scoring:	Condition Category:																		Total Score:				
	% ZOI Area:		5%				15%				30%				30%								
	Score:		15				13				9				4		1						
	Total Sub-score:		0.75				1.95				0.45				1.05						1.20		0.30
																					0.29		

CI = Total Score/20

0.29

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																				
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No roadbeds present within 100 feet of the AA boundary					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.						High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Existing ROW and paved road present.																					

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20							
	Optimal					Suboptimal					Marginal						Poor						
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.						High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
											Condition Score					Weighting			Sub-Scores				
											a. Roadbed 0-100:					11			* (0.67)		7		
											b. Roadbed 100-300:					11			* (0.33)		4		
																			Total Score:		11		0.55
Comments: Existing ROW and paved road present.																							

CI = Total Score/20

0.55

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					High Poor: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No Invasive Species identified in wetland AA.																				

b. Vegetation	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40
SCORE	20 19	18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

Comments:	a. Invasive Sub-Score:		20	Total Score	0.73
Maintained pipeline ROW, grazed pasture, residential areas that are mowed and maintained.	b. Vegetation Sub-Score:		9	29	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal				Marginal				Poor										
Hydrologic Modification Stressor Presence	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintainece on pipeline ROW and runoff from road																Score:		14			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.69

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD066JLM	W086	41.792551	-78.264545	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	6			100-300 ft.	6		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)	X			
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		2		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.33	W088	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.79567	-78.264205	WD064JLM, PEM wetland		

General Comments: Mowed hayfield, nearly 100 percent reed canary grass. Depression inundated during wet season. PEM located in agricultural field (0.33 acres in ECL). Wetland continues upslope and downslope of Project (1.47 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the Project area. AA includes 0.33 acres of PEM within and 0.67 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20						
	Optimal					Suboptimal			Marginal			Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understorey.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understorey.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understorey.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																				Total Score:	
	% ZOI Area:		0%			30%			10%			40%			20%			0%				
	Score:		0			13			9			7			4			0				
	Total Sub-score:		0.00			3.90			0.90			2.80			0.80			0.00			8.40	
																					0.42	

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other access road, wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																						
	Optimal					Suboptimal					Marginal						Poor																						
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories																					CI = Total Score/20												
Optimal					Suboptimal					Marginal					Poor																		
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary				<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.				<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 2 but equal to or less than 4.				<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.				<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.				<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.				<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1							
											Condition Score					Weighting					Sub-Scores												
										a. Roadbed 0-100:					17					* (0.67)					11								
										b. Roadbed 100-300:					17					* (0.33)					6								
																				Total Score:					17								
																									0.85								

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																		
a. Invasive Species Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Greater than 50% of the total AA contains invasive species.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: One Invasive Species identified in wetland AA.																																		
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Mowed hayfield											a. Invasive Sub-Score:					1					Total Score					0.25								
											b. Vegetation Sub-Score:					9					10													
4. Hydrologic Modification Index																																		
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:					17					0.85								
5. Sediment Stressor Index																																		
Sediment Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Two stressors identified due to hayfield																Score:					14					0.70								
6. Water Quality Stressor Index																																		
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.											a. Eutrophication Score					20					Total Score:					1.00								
											b. Contaminant Score					20					40													
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																Overall Condition Index:					0.68													

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD064JLM	W088	41.79567	-78.264205	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17 Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)	X			
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X		1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar				100					

Total % relative cover of all invasives, collectively on site: 100 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.80	W091	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.795333	-78.254476	WD058JLM, PSS wetland		

General Comments: Large PSS wetland in a backwater of the Allegheny River. Forested areas occur outside of the plot. PSS located 0.80 acres in ECL and continues downslope of Project (4.2 acres delineated) beyond ECL. Impacts occur only to the PSS wetland area in the Project area. AA includes 0.80 acres of PSS within and 0.20 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category															CI = Total Score/20																					
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal						Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																								
Scoring:	Condition Category:																																				
	% ZOI Area:		0%					40%					10%					10%					20%					20%					Total Score:				
	Score:		0					13					9					7					4					1									
	Total Sub-score:		0.00					5.20					0.90					0.70					0.80					0.20					7.80				
																					0.39																

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments:

No stressors identified.

a. Invasive Sub-Score:

20

Total Score

1.00

b. Vegetation Sub-Score:

20

40

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

Score:

20

1.00

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

Score:

20

1.00

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

a. Eutrophication Score

20

Total Score:

1.00

b. Contaminant Score

20

40

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.83

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD058JLM	W091	41.795333	-78.254476	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.	1	4	4
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	10		

Road Comments: Dirt roads to residential development within 100 feet and paved roads within 300 feet of wetland.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)			X	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X	
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		0		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)			X	
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		0		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:			X	
Total Number:		0		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.38	W091A	0.80	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.795924	-78.255239	WD058JLM, PEM wetland		

General Comments: PEM wetland in a backwater of the Algheny River. Forested areas occur outside of the plot and connected to PSS wetland. PEM wetland in maintained pipeline ROW (0.38 acres in ECL) and continues upslope of Project (0.42 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.38 acres of PEM within and 0.42 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20						
	Optimal					Suboptimal			Marginal			Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understorey.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understorey.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understorey.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																				Total Score:	
	% ZOI Area:		0%			40%			10%			10%			20%			20%				
	Score:		0			13			9			7			4			1				
	Total Sub-score:		0.00			5.20			0.90			0.70			0.80			0.20				7.80
0.39																						

Comments: Area includes paved roads, development, wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																						
	Optimal					Suboptimal					Marginal						Poor																						
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Dirt roads to residential development within 100 feet of wetland.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
										Condition Score					Weighting					Sub-Scores					0.57																
										a. Roadbed 0-100:					14					* (0.67)						9															
										b. Roadbed 100-300:					6					* (0.33)						2															
																				Total Score:						11															

Comments: Dirt roads to residential development and paved roads within 300 feet of wetland.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20		Total Score					0.80													
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12		32																		

Comments:

Maintained pipeline ROW and maintenance road/ATV trail.

a. Invasive Sub-Score:	20	Total Score	0.80
b. Vegetation Sub-Score:	12	32	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.95															

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

Score:	17	0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															

Comments: One stressor identified due to ROW maintenance and ATV use.

Score:	17	0.85

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category															CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Comments: No stressors identified.

a. Eutrophication Score	20	Total Score:	1.00
b. Contaminant Score	20	40	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.74

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD058JLM	W091A	41.795924	-78.255239	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.	1	4	4
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	10		

Road Comments: Dirt roads to residential development within 100 feet and paved roads within 300 feet of wetland.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	09/30/17	0.04	W094	0.46	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, F. Davis, M. Groomer		41.795241	-78.250459	WD034JLM, PEM wetland		

General Comments: Wetland is within a hayfield. Soils compacted by plow pan/operations. Wetland is the low end of the hayfield, intercepts drainage ditch. PEM wetland in agricultural field (0.04 acres in ECL) and continues downslope of Project (0.42 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the Project area. AA includes 0.46 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																					
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																				Total Score:															
	% ZOI Area:		0%			0%			5%			80%			10%																					
	Score:		0			0			9			7			4			1																		
	Total Sub-score:		0.00			0.00			0.45			0.35			3.20			0.10			4.10															
																					0.21															

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments: Two Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal			Suboptimal			Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					3	Total Score		0.38	
Agricultural field											b. Vegetation Sub-Score:					12	15			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70															
Comments: Agricultural field and ditch																Score:		14																		

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor			CI = Total Score/20								
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.				High Marginal: Four sediment stressors present within the AA boundary.			Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Two stressors identified due to agricultural field.																Score:		14			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: No stressors identified.																					

	Condition Category																			CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor								
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.								
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00				
											b. Contaminant Score					20		40						

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.57

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			09/30/17	J. Miner, F. Davis, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD034JLM	W094	41.795241	-78.250459	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	3	2	6	100-300 ft.	3	2	6
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	8			100-300 ft.	8		

Road Comments: Paved road and dirt roads within 100-300 feet of wetland.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		09/30/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods	X	1		
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? **YES** NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar				70					
hola	1								

Total % relative cover of all invasives, collectively on site: 71 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	09/30/17	0.01	W096	0.03	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.811266	-78.205338	WD041TMM, PEM wetland		

General Comments: Intermittent stream drains into wetland. Wetland adjacent to perennial stream. PEM wetland located in existing pipeline ROW at valley bottom (0.004 acres in ECL) and continues upslope of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.03 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20	
	Optimal					Suboptimal					Marginal					Poor					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																			Total Score:	
	% ZOI Area:		0%		0%		30%		0%		60%			10%							
	Score:		0		0		12		0		4			1							
	Total Sub-score:		0.00		0.00		3.60		0.00		2.40			0.10			6.10				
																				0.31	

Comments: Area includes streams, maintained pipeline ROW, and clearcut forested area. Remainder of adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																			
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20													
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor															
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
	SCORE					20 19 18 17 16					15 14 13 12 11						10 9 8 7 6			5 4 3		2 1							
																	Condition Score			Weighting		Sub-Scores							
															a. Roadbed 0-100:			17		* (0.67)		11							
															b. Roadbed 100-300:			17		* (0.33)		6							
																				Total Score:		17		0.85					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40						
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor					
	High Optimal:	Low Optimal:				High Suboptimal:	Low Suboptimal:				High Marginal:	Low Marginal:					Greater than five vegetation stressors present within the AA boundary.					
	No vegetation stressors present within the AA boundary.	One vegetation stressor present within the AA boundary.				Two vegetation stressors present within the AA boundary.	Three vegetation stressors present within the AA boundary.				Four vegetation stressors present within the AA boundary.	Five vegetation stressors present within the AA boundary.										
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments:											a. Invasive Sub-Score:					7	Total Score					0.60
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					17	24					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20				
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17		0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal				Marginal				Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: No stressors identified.																					

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.74

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			09/30/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD041TMM	W096	41.811266	-78.205338	Pipeline access roads				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Dirt access road/atv trail used for pipeline inspection and maintenance.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		09/30/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)	X		
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		4	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X		
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar			40%						

Total % relative cover of all invasives, collectively on site: 40 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/09/17	0.10	W101	0.69
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.819422	-78.193012	WD044TMM, PEM wetland	
General Comments: PEM wetland located in active cow pasture in valley bottom and floodplain. Abutts intermittent stream, and is adjacent to W099 and W100. Wetland has 0.10 acres in ECL and continues downslope of Project (0.59 acres delineated) beyond ECL. AA includes entire 0.69 acres of the PEM wetland.					

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)																				
Scoring:	Condition Category:																											Total Score:								
	% ZOI Area:		0%					0%					0%					0%					100%						0%							
	Score:		0					0					0					0					4						0							
	Total Sub-score:		0.00					0.00					0.00					0.00					4.00						0.00					4.00		
Comments: Area includes streams, other wetlands, and active cow pasture lands.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: No roadbeds present in ZOI.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																Condition Score					Weighting					Sub-Scores					1.00									
																a. Roadbed 0-100:					20					* (0.67)						13								
																b. Roadbed 100-300:					20					* (0.33)						7								
																										Total Score:						20								
Comments: No roadbeds present in ZOI.																																								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																					
a. Invasive Species Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No invasives present. Low Optimal: <5% of the total AA contains invasive species.						High Suboptimal: >5% but less than 10% of the total AA contains invasive species.	Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.	Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No Invasive Species identified in wetland AA.																					
4. Hydrologic Modification Index																					
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Maintaine on agricultural land and active cow pasture.																					
a. Invasive Sub-Score: 20 Total Score: 0.85																					
b. Vegetation Sub-Score: 14 Total Score: 34																					
5. Sediment Stressor Index																					
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Maintaine on agricultural land and active cow pasture.																					
Score: 17																					
0.85																					
6. Water Quality Stressor Index																					
Sediment Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: One stressor identified due to maintaine on agricultural land and active cow pasture.																					
Score: 17																					
0.85																					
7. Water Quality Stressor Index																					
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					
a. Eutrophication Score: 20 Total Score: 1.00																					
b. Contaminant Score: 20 Total Score: 40																					
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																					
Overall Condition Index: 0.79																					

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/09/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD044TMM	W101	41.819422	-78.193012					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		
Road Comments: No roadbeds present in ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/09/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)	X			
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)				X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)				X
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)				X
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:	X			
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	09/29/17	0.04	W112	0.08	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.883906	-77.955779	WD032TMM, PEM wetland		

General Comments: PEM wetland located on hillside in depression within existing ROW. Wetland is adjacent but not connected to W113 and W114. Wetland occurs in maintained pipeline ROW (0.04 acres in ECL) and continues downslope of Project (0.04 acres delineated) beyond ECL. AA includes entire 0.08 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

		Condition Category															CI = Total Score/20													
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal	Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.	<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.																							
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1								
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																	
	2. Estimate the % area within each condition category. Calculators are provided for you below.																													
	3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																													
Scoring:	Condition Category:																Total Score:													
	% ZOI Area:	0%					80%					0%																		
	Score:	0					12					0					0													
	Total Sub-score:	0.00					9.60					0.00					0.80					0.00					10.40			
0.52																														

Comments: Area includes stream, other wetlands, maintained pipeline ROW, and forest with maintained understory.

2. Roadbed Presence Index

	Condition Categories																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor										
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

[illegible]

	Condition Categories															CI = Total Score/20															
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																	
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 to 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
																Condition Score					Weighting			Sub-Scores							
																a. Roadbed 0-100:					17			* (0.67)			11				
																b. Roadbed 100-300:					17			* (0.33)			6				
																								Total Score:			17				
																											0.85				

Comments: Maintained pipeline ROW.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal			Suboptimal			Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score		0.80	
Maintained pipeline ROW.											b. Vegetation Sub-Score:					12	32			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: Maintainece on pipeline ROW																Score:		17								

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	<u>High Optimal:</u> No sediment stressors present within the AA boundary.					<u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.		<u>High Marginal:</u> Four sediment stressors present within the AA boundary.			<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to maintenance on pipeline ROW																	Score:		17		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: No stressors identified.																					

Comments: No stressors identified.

	Condition Category															CI = Total Score/40										
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments: No stressors identified.											a. Eutrophication Score					20					Total Score:					1.00
											b. Contaminant Score					20					40					

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			09/29/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD032TMM	W112	41.883906	-77.955779					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Maintained pipeline ROW								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		09/29/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	09/29/17	0.05	W114	0.14
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.884082	-77.95518	WD032TMM, PEM wetland	

General Comments: PEM wetland located on hillside in depression within existing ROW. Wetland is adjacent but not connected to W112 and W113. Wetland occurs in maintained pipeline ROW (0.05 acres in ECL) and continues downslope of Project (0.09 acres delineated) beyond ECL. AA includes entire 0.14 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																		CI = Total Score/20							
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)													
	2. Estimate the % area within each condition category. Calculators are provided for you below.																									
	3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																									
Scoring:	Condition Category:																	Total Score:								
	% ZOI Area:		0%			0%			80%			0%			20%											
	Score:		0			0			12			0			4											
	Total Sub-score:		0.00			0.00			9.60			0.00			0.80			0.00			10.40					
0.52																										

Comments: Area includes stream, other wetlands, maintained pipeline ROW, and forest with maintained understory.

2. Roadbed Presence Index

2: Roadbed Presence Index																																					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																			
		Optimal					Suboptimal					Marginal					Poor																				
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																	

Comments: Maintained pipeline ROW.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.85															
											a. Roadbed 0-100:					17					* (0.67)						11														
											b. Roadbed 100-300:					17					* (0.33)						6														
																					Total Score:						17														

Comments: Maintained pipeline ROW.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										

Comments: No Invasive Species identified in wetland AA.

	Condition Category															C1 = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20					Total Score					0.80										
Maintained pipeline ROW.											b. Vegetation Sub-Score:					12					32															

Comments: Maintained pipeline ROW.

a. Invasive Sub-Score: 20
b. Vegetation Sub-Score: 12

Total Score: 32
0.80

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	<u>High Optimal:</u> No hydrologic stressors present within the AA boundary.					<u>High Suboptimal:</u> Two hydrologic stressors present within the AA boundary.					<u>High Marginal:</u> Four hydrologic stressors present within the AA boundary.						<u>Low Marginal:</u> Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	<u>Low Optimal:</u> One hydrologic stressor present within the AA boundary.					<u>Low Suboptimal:</u> Three hydrologic stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: Maintaince on pipeline ROW																Score:		17								

Comments: Maintenance on pipeline ROW

Score: 17

0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20										
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.						Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to maintenance on pipeline ROW																Score:		17								

Comments: One stressor identified due to maintenance on pipeline ROW

Score: 17

0.85

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Comments: No stressors identified.

a. Eutrophication Score: 20
b. Contaminant Score: 20

Total Score: 40
1.00

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			09/29/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD032TMM	W114	41.884082	-77.95518					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Maintained pipeline ROW								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		09/29/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/01/18	0.11	W124A, W124B	0.11
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, M. Groomer		41.845306	-78.064734	WD202JLM, PEM wetland	

General Comments: Small PEM wetlands in valley bottom/floodplain. Spring flow enters wetland. Perennial stream separates W124A and W124B. Wetlands tie to stream. PEM wetland in and adjacent to maintained ROW (0.11 acres in ECL). Impacts occur only to the PEM wetland area in the Project area. AA includes entire 0.11 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																			
	Optimal					Suboptimal					Marginal						Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.
 2. Estimate the % area within each condition category. Calculators are provided for you below.
 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.

Condition Category:																											Total Score:								
Scoring:	% ZOI Area:	0%					5%					5%					10%					75%						5%							
	Score:	0					13					9					7					4						1							
	Total Sub-score:	0.00					0.65					0.45					0.70					3.00						0.05					4.85		

0.24

Comments: Area includes paved road, residential area, other wetlands, a stream, and maintained ROW.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Paved road and maintained ROW

Comments: Paved road and maintained ROW

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

										Condition Score					Weighting					Sub-Scores									
										a. Roadbed 0-100:					14					* (0.67)					9				
										b. Roadbed 100-300:					14					* (0.33)					5				
																				Total Score:					14				

0.70

Comments: Paved road and maintained ROW

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20					Total Score					0.80										
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12					32															

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score: 17					0.85					

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40						
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1				
Comments: No stressors identified.																				a. Eutrophication Score		20		Total Score:		1.00
																				b. Contaminant Score		20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.74

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/01/18	J. Miner, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD202JLM	W124A, W124B	41.845306	-78.064734					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		
Road Comments: Paved road and maintained ROW								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/01/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/01/18	0.12	W125	0.44	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, M. Groomer		41.845733	-78.067454	WD202JLM, PEM wetland		

General Comments: Small PEM wetland in valley bottom/floodplain. Spring flow enters wetland. Drainage ditch from upstream residential area also enters site. Wetland ties to stream which is lateral extent of wetland. PEM wetland in maintained ROW and residential area (0.12 acres in ECL). Wetland continues upslope and downslope of Project (0.32 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the Project area. AA includes entire 0.44 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence Condition Index																																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.											Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																																		
	% ZOI Area:		0%			10%			5%			5%			75%			5%			Total Score:														
	Score:		0			13			9			7			4			1																	
	Total Sub-score:		0.00			1.30			0.45			0.35			3.00			0.05			5.15														
CI = Total Score/20																																			
0.26																																			

Comments: Area includes paved road, residential area, another wetland, a ditch, and maintained ROW.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																								
	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					

Comments: Paved road and maintained ROW

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.70															
											a. Roadbed 0-100:					14					* (0.67)						9														
											b. Roadbed 100-300:					14					* (0.33)						5														
																					Total Score:						14														

Comments: Paved road and maintained ROW

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																													
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor														
	High Optimal: No invasives present.					High Suboptimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40															
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor														
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.						High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
Comments:											a. Invasive Sub-Score:					20					Total Score					0.80					
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12					32										

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70					
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Drainage ditch from residential area connected to wetland.																Score:		14								

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.72

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/01/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD202JLM	W125	41.845733	-78.067454	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Paved road and maintained ROW

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/01/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods	X	1		
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/02/18	0.03	W126C	0.07	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, M. Groomer		41.767178	-78.315141	WD204JLM, PEM wetland		

General Comments: PEM seep/old seasonal channel. Seep occurs at base of terrace slope/floodplain break. Distinct topographic break. PEM adjacent to maintained pipeline ROW (0.03 acres in ECL). Wetland continues upslope of Project (0.04 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the Project area. AA includes 0.07 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20						
	Optimal					Suboptimal			Marginal				Poor									
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																					
	% ZOI Area:		0%			60%			10%			10%			20%			0%			Total Score:	
	Score:		0			13			9			7			4			0				
	Total Sub-score:		0.00			7.80			0.90			0.70			0.80			0.00			10.20	
																					0.51	

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments:

Maintained pipeline ROW and maintenance road/ATV trail.

a. Invasive Sub-Score:	20	Total Score	0.80
b. Vegetation Sub-Score:	12	32	

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

Score:	17	0.85

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: One stressor identified due to ROW maintenance and ATV use.

Score:	17	0.85

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

a. Eutrophication Score	20	Total Score:	1.00
b. Contaminant Score	20	40	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.79

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/02/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD204JLM	W126C	41.767178	-78.315141	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	3	2	6
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	6		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/02/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/03/18	0.14	W127	1.00	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
J. Miner, M. Groomer	41.760453	-78.337957	WD207JLM, PFO and PEM wetland

General Comments: Wetland/upland mosaic that includes approximately 20-30 percent uplands. Wetland depressions with upland hummocks. PFO wetland in maintained pipeline ROW (0.14 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.22 acres delineated) beyond ECL. Connected to PEM wetland within Project area and continues downslope of the Project (0.33 acres delineated) beyond ECL. PEM wetland is connected to another PFO wetland which has no impacts and does not occur within the Project area. Impacts occur only to the PFO and PEM wetland area in the disturbed ROW. AA includes 0.59 acres of PFO and PEM within the Project area and 0.41 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index																					
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category											CI = Total Score/20									
	Optimal		Suboptimal			Marginal			Poor												
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understorey.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understorey.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understorey.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																				
	% ZOI Area:		0%		60%		10%		10%		20%		0%								
	Score:		0		13		9		7		4		0								
	Total Sub-score:		0.00		7.80		0.90		0.70		0.80		0.00		10.20						
Comments: Area includes maintained pipeline ROW with access road/ATV trail and other wetlands. Adjacent forest has maintained understorey.																					

2. Roadbed Presence Index																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories											CI = Total Score/20											
	Optimal		Suboptimal			Marginal			Poor														
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.			Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories																							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal			Marginal			Poor			CI = Total Score/20											
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary		Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.			Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
												Condition Score		Weighting		Sub-Scores							
												a. Roadbed 0-100:		17		* (0.67)		11					
												b. Roadbed 100-300:		17		* (0.33)		6					
														Total Score:		17							

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/03/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD207JLM	W127	41.760453	-78.337957	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/03/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
mivi		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/07/18	0.10	W134A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblin, M. Groomer		41.259983	-78.351378	RW227JLM, PEM wetland		

General Comments: Large PEM wetland in maintained ROW (0.10 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 1.00 acre of PEM wetland, wetland delineated as 6.62 acres.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20								
	Optimal					Suboptimal			Marginal			Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
	SCORE					20	19	18	17	16	15	14	13	12	11	10		9	8	7	6	5	4	3	2
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																				Total Score:				
	% ZOI Area:		5%			20%			5%			20%			40%			10%							
	Score:		15			13			9			7			4			1							
	Total Sub-score:		0.75			2.60			0.45			1.40			1.60			0.10			6.90				
0.35																									

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																						
	Optimal					Suboptimal					Marginal						Poor																						
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
Comments: Existing ROW and paved road present.																																							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																							
	Optimal					Suboptimal					Marginal						Poor																						
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
										Condition Score					Weighting					Sub-Scores																			
										a. Roadbed 0-100:					13					* (0.67)					9														
										b. Roadbed 100-300:					13					* (0.33)					4														
																				Total Score:					13														

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					High Poor: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No Invasive Species identified in wetland AA.																				
b. Vegetation	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.					CI = Total Score/40
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	

Comments:											a. Invasive Sub-Score:					20	Total Score					0.85
Maintained pipeline ROW.											b. Vegetation Sub-Score:					14	34					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal		Suboptimal				Marginal				Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintainece on pipeline ROW and runoff from road																Score:		14			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20								
	Optimal			Suboptimal			Marginal			Poor														
Sediment Stressor Presence	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1			
Comments: One stressor identified due to ROW maintenance.																Score:		17			0.85			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																	CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor								
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4		3	2	1
Comments: No stressors identified.											a. Eutrophication Score					20			Total Score:		1.00
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW227JLM	W134A	41.259983	-78.351378	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/07/18	0.16	W135	1.20	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblin, M. Groomer		41.253369	-78.362233	WD228JLM, PEM wetland		

General Comments: Wetland begins in ROW at culvert under highway. Extends in ROW as a narrow channel with wetland fringe to valley bottom. Valley bottom outside of ROW is wetland. Wetland extends in ROW to a water box which diverts flow off ROW. PEM wetland in and adjacent to maintained ROW (0.16 acres in ECL). Impacts occur only to the PEM wetland area in the Project area. AA includes 0.16 acres of PEM within and 1.04 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																																				
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.															Total Score = SUM(%Areas*Scores)																					
Scoring:	Condition Category:																																			
	% ZOI Area:		0%				80%				0%				20%				0%				Total Score:													
	Score:		0				13				0				4				0																	
	Total Sub-score:		0.00				10.40				0.00				0.00				0.80				0.00				11.20									
																									0.56											

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

		Condition Category																																
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.						High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category																C1 = Total Score/40												
b. Vegetation Stressor Presence	Optimal				Suboptimal				Marginal				Poor																
	High Optimal: No vegetation stressors present within the AA boundary.				Low Optimal: One vegetation stressor present within the AA boundary.				High Suboptimal: Two vegetation stressors present within the AA boundary.				Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				Low Marginal: Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									
Comments:											a. Invasive Sub-Score:				14		Total Score		0.65										
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:				12		26												

Comments:

Maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal			Marginal			Poor											
Hydrologic Modification Stressor Presence	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Drainage ditch and culvert connected to wetland.																Score:		12		0.60	

Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Drainage ditch and culvert connected to wetland.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal					Marginal			Poor									
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

		Condition Category																		
a. Eutrophication Stressor Presence	Optimal	Suboptimal					Marginal					Poor								
	No eutrophication stressors present within the AA boundary.	One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.						a. Eutrophication Score										20		Total Score:		1.00	
						b. Contaminant Score										20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.75

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD228JLM	W135	41.253369	-78.362233	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods	X	1	
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		3	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
mivi		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/07/18	0.01	W137	0.01	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblyn, M. Groomer		41.241145	-78.418386	RW232JLM, PEM wetland		

General Comments: PEM wetland connected to intermittent and perennial stream. Wetland in and adjacent to maintained ROW (0.003 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 0.007 acres of PEM wetland (impact and AA size rounded to 0.01 for form).

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																					
	Optimal					Suboptimal					Marginal						Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)																					
2. Estimate the % area within each condition category. Calculators are provided for you below.																																					
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																					
Condition Category:																																					
Scoring:	% ZOI Area:		5%					5%					10%					30%					40%					10%					Total Score:				
	Score:		15					13					9					7					4					1									
	Total Sub-score:		0.75					0.65					0.90					2.10					1.60					0.10									
0.31																																					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40
SCORE	20 19	18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

Comments: Maintained pipeline ROW.	a. Invasive Sub-Score:		20	Total Score	0.85
	b. Vegetation Sub-Score:		14	34	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintainece on pipeline ROW and runoff from road																Score:		14			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor							
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.							
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1	
Comments: No stressors identified.						a. Eutrophication Score														20	Total Score:		1.00
						b. Contaminant Score														20	40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW232JLM	W137	41.241145	-78.418386	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/08/18	0.02	W138	0.07	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblyn, M. Groomer		41.240996	-78.417151	WD233JLM, PEM wetland		

General Comments: PEM wetland adjacent to perennial stream. Wetland in and adjacent to maintained ROW (0.02 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 0.07 acres of PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																					
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																																			
	% ZOI Area:		5%					35%					30%					10%					10%					Total Score:								
	Score:		15					13					9					7					4										1			
	Total Sub-score:		0.75					4.55					2.70					0.70					0.40					0.10					9.20			
																					0.46															

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																								
		Optimal				Suboptimal				Marginal				Poor												
		High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments: Existing ROW and paved road present.																										
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)		Condition Categories																CI = Total Score/20								
		Optimal				Suboptimal				Marginal				Poor												
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary	Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
												Condition Score				Weighting				Sub-Scores						
												a. Roadbed 0-100:				13				* (0.67)				9		
												b. Roadbed 100-300:				13				* (0.33)				4		
																				Total Score:				13		0.65
Comments: Existing ROW and paved road present.																										

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					High Poor: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No Invasive Species identified in wetland AA.																				
b. Vegetation	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				

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Pennsylvania Department of Environmental Protection

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Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40
SCORE	20 19	18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

Comments:											a. Invasive Sub-Score:					20	Total Score					0.85
Maintained pipeline ROW.											b. Vegetation Sub-Score:					14	34					

4. Hydrologic Modification Index

	Condition Category														CI = Total Score/20						
Hydrologic Modification Stressor Presence	Optimal		Suboptimal				Marginal				Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintenance on pipeline ROW and runoff from road																					

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal		Suboptimal					Marginal					Poor								
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.		High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor									
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: No stressors identified.											a. Eutrophication Score						20	Total Score:				1.00
											b. Contaminant Score						20	40				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.75

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/08/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD233JLM	W138	41.240996	-78.417151	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/08/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/08/18	0.02	W139	0.06	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblyn, M. Groomer		41.232687	-78.474216	WD235JLM, PEM wetland		

General Comments: PEM wetland located in between perennial stream and road. Wetland connects to stream in maintained ROW only. Wetland in and adjacent to maintained ROW (0.02 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 0.06 acres of PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20													
	Optimal					Suboptimal			Marginal			Poor																	
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																	
2. Estimate the % area within each condition category. Calculators are provided for you below.																													
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																													
Scoring:	Condition Category:																												
	% ZOI Area:					5%					10%					30%													
	Score:					15					13					9													
	Total Sub-score:					0.75					1.30					0.45													
										2.10					1.60					0.10					6.30				
																				0.32									

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																																																																																																																																																														
		Optimal					Suboptimal					Marginal										Poor																																																																																																																																																										
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.										Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.																																																																																																																																						
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																																											
Comments: Existing ROW and paved road present.																																																																																																																																																																																
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)		Condition Categories															CI = Total Score/20																																																																																																																																																															
		Optimal					Suboptimal					Marginal										Poor																																																																																																																																																										
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.										Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.																																																																																																																																						
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																																											
<table><tr><td colspan="12"></td><td colspan="5">Condition Score</td><td colspan="5">Weighting</td><td colspan="5">Sub-Scores</td></tr><tr><td colspan="12"></td><td colspan="5">a. Roadbed 0-100:</td><td colspan="5">13</td><td colspan="5">* (0.67)</td><td colspan="5">9</td></tr><tr><td colspan="12"></td><td colspan="5">b. Roadbed 100-300:</td><td colspan="5">13</td><td colspan="5">* (0.33)</td><td colspan="5">4</td></tr><tr><td colspan="12"></td><td colspan="5"></td><td colspan="5"></td><td colspan="5">Total Score:</td><td colspan="5">13</td></tr><tr><td colspan="12"></td><td colspan="10"></td><td colspan="10">0.65</td></tr></table>																																		Condition Score					Weighting					Sub-Scores																	a. Roadbed 0-100:					13					* (0.67)					9																	b. Roadbed 100-300:					13					* (0.33)					4																											Total Score:					13																											0.65									
												Condition Score					Weighting					Sub-Scores																																																																																																																																																										
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Comments: Existing ROW and paved road present.																																																																																																																																																																																

3. Vegetation Condition Index

	Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments: No Invasive Species identified in wetland AA.																																				
	Condition Category																																			
b. Vegetation	Optimal					Suboptimal					Marginal						Poor																			

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Maintained pipeline ROW.											a. Invasive Sub-Score:		20	Total Score		0.85				
											b. Vegetation Sub-Score:		14	34						

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Score:	14	0.70											
Comments: Maintainece on pipeline ROW and runoff from road																																		

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Score:	17	0.85											
Comments: One stressor identified due to ROW maintenance.																																		

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40																										
	Optimal					Suboptimal					Marginal						Poor																									
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			1.00																			
Comments: No stressors identified.																																										

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/08/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD235JLM	W139	41.232687	-78.474216	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/08/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/08/18	0.02	W139A	0.03	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblin, M. Groomer		41.232885	-78.475562	RW235JLM, PEM wetland		

General Comments: PEM wetland connected to intermittent stream. Wetland in and adjacent to maintained ROW (0.02 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 0.03 acres of PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal			Marginal			Poor									
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)					
Scoring:	Condition Category:																				
	% ZOI Area:		5%		10%		5%		30%		40%		10%								
	Score:		15		13		9		7		4		1								
	Total Sub-score:		0.75		1.30		0.45		2.10		1.60		0.10		6.30						
																					0.32

Comments: Area includes streams, another wetland, existing pipeline ROW, forest with maintained understory, paved road, and cleared land.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																						
	Optimal					Suboptimal					Marginal					Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Existing ROW and paved road present.

	Condition Categories															CI = Total Score/20					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary		Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
																0.65					
															0.65						

Comments: Existing ROW and paved road present.

3. Vegetation Condition Index

		Condition Category																																		
		Optimal					Suboptimal					Marginal					Poor																			
a. Invasive Species Presence		High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category			
b. Vegetation	Optimal	Suboptimal	Marginal	Poor

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.					CI = Total Score/40
	2019181716					1514131211					109876					54321																				

Comments:											a. Invasive Sub-Score:					20	Total Score					0.85
Maintained pipeline ROW.											b. Vegetation Sub-Score:					14	34					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal		Suboptimal				Marginal				Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintainece on pipeline ROW and runoff from road																	Score:		14		

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20								
	Optimal			Suboptimal			Marginal			Poor														
Sediment Stressor Presence	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1			
Comments: One stressor identified due to ROW maintenance.																Score:		17				0.85		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					

	Condition Category																CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor								
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20			Total Score:		1.00	
											b. Contaminant Score				20		40				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/08/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD235JLM	W139A	41.232885	-78.475562	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/08/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/01/2018	0.39	W141, W141A	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.835692	-78.124825	WD206TMM, PSS and PEM wetland	

General Comments: PSS wetland parallels intermittent stream on both sides and is connected to PEM wetland (W141A). PSS Wetland has 0.10 acres in ECL and continues downslope of Project (0.72 acres delineated) beyond ECL. PEM wetland occurs in mowed agricultural field (0.29 acres in ECL) and continues downslope of Project (0.18 acres delineated) beyond ECL where it connects to W141. AA includes entire 0.47 acres of the PEM wetland and 0.53 acres of the PSS wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.											Total Score = SUM(%Areas*Scores)																									
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					50%					0%						45%					5%							
	Score:		0					0					12					0						4					1							
Total Sub-score:		0.00					0.00					6.00					0.00					1.80					0.05					7.85				

0.39

Comments: Area includes streams, agricultural fields, forest with maintained understory, and residential development.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: No roadbeds present in ZOI.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
											Condition Score					Weighting					Sub-Scores																			
											a. Roadbed 0-100:					20					* (0.67)					13														
											b. Roadbed 100-300:					20					* (0.33)					7														
																					Total Score:					20														
Comments: No roadbeds present in ZOI.																																								

1.00

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																				
		Condition Category																																		
		Optimal					Suboptimal					Marginal								Poor																
a. Invasive Species Presence		High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Poor: > 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: No Invasive Species identified in wetland AA.																																				
		Condition Category															CI = Total Score/40																			
		Optimal					Suboptimal					Marginal								Poor																
b. Vegetation Stressor Presence		High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Poor: Greater than five vegetation stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments:										a. Invasive Sub-Score:										20		Total Score		0.85												
Maintainance on agricultural land.										b. Vegetation Sub-Score:										14		34														
4. Hydrologic Modification Index																																				
		Condition Category															CI = Total Score/20																			
		Optimal					Suboptimal					Marginal								Poor																
Hydrologic Modification Stressor Presence		High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Poor: Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: Maintaince on agricultural land and presence of added spring boxes and PVC pipes placed along intermittent stream.										Score:										14		0.70														
5. Sediment Stressor Index																																				
		Condition Category															CI = Total Score/20																			
		Optimal					Suboptimal					Marginal								Poor																
Sediment Stressor Presence		High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Poor: Greater than five sediment stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: One stressor identified due to maintaince on agricultural land and active cow pasture.										Score:										17		0.85														
6. Water Quality Stressor Index																																				
		Condition Category															CI = Total Score/40																			
		Optimal					Suboptimal					Marginal								Poor																
a. Eutrophication Stressor Presence		No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.																			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: No stressors identified.																																				
		Condition Category															CI = Total Score/40																			
		Optimal					Suboptimal					Marginal								Poor																
b. Contaminant / Toxicity Stressor Presence		No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.																			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: No stressors identified.										a. Eutrophication Score										20		Total Score:		1.00												
										b. Contaminant Score										20		40														
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.															Overall Condition Index:					0.80																

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/01/2018	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD206TMM	W141, W141A	41.835692	-78.124825					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		
Road Comments: No roadbeds present in ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/01/2018	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)	X		
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		2	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	2	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)	X		
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/02/2018	0.31	W142	0.96	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.835602	-78.12785	WD207TMM, PSS/PEM wetland		

General Comments: PSS wetland located on stream bank and extends to agricultural field built on a terrace. Wetland is classified as PEM wetland in agricultural areas that have been mowed. Abutts perennial stream, and is adjacent to W142A, W141, and W141A. Wetland has 0.31 acres in ECL and continues downslope of Project (0.65 acres delineated) beyond ECL. AA includes entire 0.96 acres of the PSS/PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20						
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)													
Scoring:	Condition Category:																		Total Score:							
	% ZOI Area:		0%				0%				10%				20%											
	Score:		0				0				12				7											
	Total Sub-score:		0.00				0.00				1.20				1.40											
		0.00				0.00				1.20				1.40				2.40				0.10		5.10		0.26

Comments: Area includes stream, another wetland, agricultural fields, maintained forest, a dirt road, and residential development.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: No roadbeds present within 100 feet of AA.

	Condition Categories																			CI = Total Score/20																			
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
											Condition Score					Weighting					Sub-Scores				0.95														
											a. Roadbed 0-100:					20					* (0.67)					13													
											b. Roadbed 100-300:					17					* (0.33)					6													
																										Total Score:					19								

Comments: Dirt road for access to residential development within 300 feet of AA.

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

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3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:			11	Total Score		0.63			
Maintainence on agricultural land.											b. Vegetation Sub-Score:			14	25					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.		High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Maintainece on agricultural land.																Score:		17			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																		
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85													
Comments: One stressor identified due to maintainece on agricultural land.																Score:		17																

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: No stressors identified.																					

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor								
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1				
Comments: No stressors identified.																a. Eutrophication Score				20		Total Score:		1.00
																b. Contaminant Score				20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/02/2018	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD207TMM	W142	41.835602	-78.12785					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	2		
Road Comments: Dirt road for access to residential development within 300 feet of AA.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/02/2018		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)				X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
loja		20%							

Total % relative cover of all invasives, collectively on site: 20 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/02/2018	0.06	W143	0.08	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.821705	-78.191506	WD209TMM, PEM wetland		

General Comments: PEM wetland located in depression within floodplain of stream. Abutts perennial stream, and is adjacent to W103 and W143A. Wetland has 0.06 acres in ECL and continues on both sides of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.08 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20			
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor							
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1		
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)										
Scoring:	Condition Category:																				Total Score:		
	% ZOI Area:		0%			0%			0%			50%			50%								
	Score:		0			0			0			0			4			1					
	Total Sub-score:		0.00			0.00			0.00			0.00			2.00			0.50			2.50		
																					0.13		

Comments: Area includes stream, other wetlands, and agricultural fields.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																						
	Optimal					Suboptimal					Marginal						Poor																						
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: No roadbeds present in ZOI.

	Condition Categories																			CI = Total Score/20																						
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																										
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																						
																					Condition Score					Weighting					Sub-Scores					1.00						
											a. Roadbed 0-100:					20					* (0.67)					13																
											b. Roadbed 100-300:					20					* (0.33)					7																
																					Total Score:					20																

Comments: No roadbeds present in ZOI.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																		
a. Invasive Species Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No invasives present.	Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: One Invasive Species identified in wetland AA.																																		
4. Hydrologic Modification Index																																		
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Maintaine on agricultural land.																																		
															a. Invasive Sub-Score:		8	Total Score		0.55														
															b. Vegetation Sub-Score:		14	22																
5. Sediment Stressor Index																																		
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Maintaine on agricultural land.																																		
															Score:		17		0.85															
6. Water Quality Stressor Index																																		
Sediment Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: One stressor identified due to maintaine on agricultural land and active cow pasture.																																		
															Score:		17		0.85															
7. Water Quality Stressor Index																																		
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
															a. Eutrophication Score		20	Total Score:		1.00														
															b. Contaminant Score		20	40																
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																																		
															Overall Condition Index:		0.73																	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/02/2018	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD209TMM	W143	41.821705	-78.191506					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		
Road Comments: No roadbeds present in ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/02/2018	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)	X		
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		2	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)	X		
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar			30%						

Total % relative cover of all invasives, collectively on site: 30 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/03/18	0.04	W145	0.09

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
T. Malecki, M. Groomer	41.715968	-78.474561	WD212TMM, PEM wetland

General Comments: PEM wetland located on hillside terrace at corner of agricultural plot and adjacent to forest (0.04 acres in ECL). PEM wetland continues downslope of Project (0.05 acres delineated) beyond ECL. AA includes entire 0.09 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

1. Wetland Zone of Influence Condition Index																																	
Wetland Zone of Influence (300 foot area around AA perimeter)		Condition Category																		CI = Total Score/20													
		Optimal					Suboptimal					Marginal					Poor																
		ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
		SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																	
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																	
Scoring:	Condition Category:																						Total Score:										
	% ZOI Area:		0%					0%					60%					0%								10%					30%		
	Score:		0					0					12					0								4					2		
	Total Sub-score:		0.00					0.00					7.20					0.00								0.40					0.60		
																				0.41													

[illegible]

2. Roadbed Presence Index

2. Roadbed Presence Index																																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																			
	Optimal					Suboptimal					Marginal				Poor																					
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No roadbeds occur within AA.

	Condition Categories															CI = Total Score/20													
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor															
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									
																Condition Score			Weighting			Sub-Scores							
																a. Roadbed 0-100:			20			* (0.67)			13				
																b. Roadbed 100-300:			20			* (0.33)			7				
																						Total Score:			20				
																									1.00				

Comments: No roadbeds occur within AA.

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Pennsylvania Department of Environmental Protection

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3. Vegetation Condition Index

Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: One Invasive Species identified in wetland AA at 20% cover.

	Condition Category															CI = Total Score/40										
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.						<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
	<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments:																										
Area includes maintained agricultural plot and forest with maintained understory.											a. Invasive Sub-Score:					11					Total Score					0.58
											b. Vegetation Sub-Score:					12					23					

4. Hydrologic Modification Index

Hydrologic Modification Index																					
Hydrologic Modification Stressor Presence	Condition Category																			CI = Total Score/20	
	Optimal			Suboptimal				Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: One stressor identified due to agricultural plot.																	Score:		17		0.85

5. Sediment Stressor Index

C: Sediment Stressor Index																						
		Condition Category																		CI = Total Score/20		
		Optimal			Suboptimal			Marginal			Poor											
Sediment Stressor Presence	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.			Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: One stressor identified due to agricultural plot.																Score:		17				0.85

6. Water Quality Stressor Index

0.1 Water Quality Stressor: Max																				
a. Eutrophication Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.																				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/03/18	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD212TMM	W145	41.715968	-78.474561					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		
Road Comments: No roadbeds occur in AA.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/03/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)	X		
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)	X		
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
mivi		20%							

Total % relative cover of all invasives, collectively on site: 20 %

Comments:

Common Invasives/Aggressives List

<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>	<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/06/18	0.11	W148	0.17	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.328294	-78.201643	WD224TMM, PSS wetland		

General Comments: PSS wetland located along roadside in riverine valley. Intermittent stream drains into wetland. Wetland occurs in existing pipeline ROW (0.11 acres in ECL) and continues on both sides of Project (0.06 acres delineated) beyond ECL. AA includes entire 0.17 acres of the PSS wetland.

1. Wetland Zone of Influence Condition Index

Condition Category																					CI = Total Score/20															
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.																			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																							
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					80%					0%							20%					0%						
	Score:		0					0					12					0							4					0						
	Total Sub-score:		0.00					0.00					9.60					0.00							0.80					0.00					10.40	
																					0.52															

Comments: Area includes streams, existing pipeline ROW, and forest with maintained understory.

2. Roadbed Presence Index

Condition Categories																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor									
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		

[illegible]

	Condition Categories															CI = Total Score/20														
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										
																Condition Score					Weighting			Sub-Scores			0.85			
																a. Roadbed 0-100:					17			* (0.67)				11		
																b. Roadbed 100-300:					17			* (0.33)				6		
																								Total Score:				17		

Comments: Existing pipeline ROW present.

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3. Vegetation Condition Index

	Condition Category																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor					
	High Optimal: No invasives present.		Low Optimal: <5% of the total AA contains invasive species.			High Suboptimal: >5% but less than 10% of the total AA contains invasive species.		Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.			High Marginal: >20% but less than 30% of the total AA contains invasive species.		Low Marginal: >30% but less than 50% of the total AA contains invasive species.			> 50% of the total AA contains invasive species.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal			Suboptimal				Marginal				Poor								
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:				20	Total Score		0.85		
Maintenance on pipeline ROW											b. Vegetation Sub-Score:				14	34				

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.		
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: Maintainece on pipeline ROW																	Score:		17		0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	<u>High Optimal:</u> No sediment stressors present within the AA boundary.					<u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.		<u>High Marginal:</u> Four sediment stressors present within the AA boundary.		<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.		
	20 19 18 17 16					15 14 13 12 11					10 9 8 7 6			5 4 3 2 1							
SCORE																0.85					
Comments: One stressor identified due to maintainece on pipeline ROW																					
Score: 17																					

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal				Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.82

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/06/18	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD224TMM	W148	41.328294	-78.201643					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Existing ROW present								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/06/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/07/18	0.11	W149	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.219774	-78.55829	WD226TMM, PSS wetland		

General Comments: PSS wetland located between road and stream. Intermittent stream runs through wetland. Wetland occurs in existing pipeline ROW (0.11 acres in ECL) and continues on both sides of Project (1.01 acres delineated) beyond ECL. AA includes 1.00 acre of the PSS wetland out of 1.12 acres that were delineated.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20	
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)								
Scoring:	Condition Category:																				
	% ZOI Area:		0%			0%			30%			20%			20%			30%			Total Score:
	Score:		0			0			12			7			4			1			
	Total Sub-score:		0.00			0.00			3.60			1.40			0.80			0.30			
																				0.31	

Comments: Area includes streams, other wetlands, existing pipeline ROW, forest with maintained understory, paved road, open water, and cleared land.

2. Roadbed Presence Index

		Condition Categories																																						
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1																			

Comments: Existing pipeline ROW and paved road present.

	Condition Categories																			CI = Total Score/20										
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										
										Condition Score					Weighting			Sub-Scores												
										a. Roadbed 0-100:					13			* (0.67)			9									
										b. Roadbed 100-300:					13			* (0.33)			4									
																		Total Score:			13					0.65				

Comments: Existing pipeline ROW and paved road present.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

		Condition Category																																
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal			Suboptimal				Marginal				Poor								
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:				20		Total Score		0.85	
Maintenance on pipeline ROW											b. Vegetation Sub-Score:				14		34			

Maintenance on pipeline ROW

4. Hydrologic Modification Index

	Condition Category															C1 = Total Score/20					
	Optimal					Suboptimal					Marginal			Poor							
Hydrologic Modification Stressor Presence	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.		High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Comments: Maintainece on pipeline ROW and runoff from road

5. Sediment Stressor Index

	Condition Category															C1 = Total Score/20																		
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																	
	<u>High Optimal:</u> No sediment stressors present within the AA boundary.					<u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.					<u>High Marginal:</u> Four sediment stressors present within the AA boundary.					<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0													

Comments: Three stressors identified due to maintaince on pipeline ROW and construction in the area.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.68

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/07/18	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD226TMM	W149	41.219774	-78.55829					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		
Road Comments: Existing ROW and paved road present								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X			
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		3		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/07/18	0.10	W149C	0.39
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.219321	-78.553844	RW228TMM, PEM wetland	

General Comments: PEM wetland located between stream and PSS wetland. Adjacent but not connected to W149D. Wetland occurs in existing pipeline ROW (0.10 acres in ECL); continues upslope of Project (0.27 acres delineated) and downslope of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.39 acres of PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																		CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.																			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																								
Scoring:	Condition Category:																						Total Score:														
	% ZOI Area:		15%					15%					10%					10%																			
	Score:		14					12					9					7																			
	Total Sub-score:		2.10					1.80					0.90					0.70																			
		2.10					1.80					0.90					0.70					1.60					0.10					7.20					0.36

Comments: Area includes stream, another wetland, existing pipeline ROW, forest with maintained understory, paved road, open water, and cleared land.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																			
	Optimal					Suboptimal					Marginal				Poor																					
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1															
Comments: Existing pipeline ROW and paved road present.																																				
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																			
	Optimal					Suboptimal					Marginal				Poor																					
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1															
										Condition Score				Weighting				Sub-Scores				0.65														
										a. Roadbed 0-100:				13				* (0.67)						9												
										b. Roadbed 100-300:				13				* (0.33)						4												
														Total Score:				13																		

Comments: Existing pipeline ROW and paved road present.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																			
	Optimal					Suboptimal				Marginal				Poor						
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.				High Suboptimal: >5% but less than 10% of the total AA contains invasive species.		Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.		High Marginal: >20% but less than 30% of the total AA contains invasive species.			Low Marginal: >30% but less than 50% of the total AA contains invasive species.		> 50% of the total AA contains invasive species.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No Invasive Species identified in wetland AA.																				
	Condition Category																			

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

b. Vegetation Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:		20	Total Score		0.85				
Maintenance on pipeline ROW											b. Vegetation Sub-Score:		14	34						

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Maintenance on pipeline ROW and runoff from road											Score:		14		0.70					

5. Sediment Stressor Index

Sediment Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Three stressors identified due to maintenance on pipeline ROW and construction in the area.											Score:		12		0.60					

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No eutrophication stressors present within the AA boundary.	One eutrophication stressors present within the AA boundary.	Two eutrophication stressors present within the AA boundary.	Three eutrophication stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											Score:		12		0.60					

b. Contaminant / Toxicity Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No contaminant / toxicity stressors present within the AA boundary.	One contaminant / toxicity stressors present within the AA boundary.	Two contaminant / toxicity stressors present within the AA boundary.	Three contaminant / toxicity stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score		20	Total Score:		1.00				
											b. Contaminant Score		20	40						

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.69

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW228TMM	W149C	41.219321	-78.553844	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X			
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		3		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
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elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
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ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/07/18	0.03	W149D	0.12
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.219088	-78.552983	RW227TMM, PSS wetland	

General Comments: PSS wetland located between stream and PEM wetland. Adjacent but not connected to W149C. Wetland occurs in existing pipeline ROW (0.03 acres in ECL); continues upslope of Project (0.02 acres delineated) and downslope of Project (0.07 acres delineated) beyond ECL. AA includes entire 0.12 acres of PSS wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																			
	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																								
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Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		15%				15%				10%				10%																					
	Score:		14				12				9				7				4				1													
	Total Sub-score:		2.10				1.80				0.90				0.70				1.60				0.10				7.20									
																						0.36														

Comments: Area includes stream, another wetland, existing pipeline ROW, forest with maintained understory, paved road, open water, and cleared land.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																						
	Optimal					Suboptimal					Marginal					Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
Comments: Existing pipeline ROW and paved road present.																																							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																						
	Optimal					Suboptimal					Marginal					Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

b. Vegetation Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:		20	Total Score		0.85				
Maintenance on pipeline ROW											b. Vegetation Sub-Score:		14	34						

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Maintenance on pipeline ROW and runoff from road											Score:		14		0.70					

5. Sediment Stressor Index

Sediment Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Three stressors identified due to maintenance on pipeline ROW and construction in the area.											Score:		12		0.60					

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No eutrophication stressors present within the AA boundary.	One eutrophication stressors present within the AA boundary.	Two eutrophication stressors present within the AA boundary.	Three eutrophication stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No contaminant / toxicity stressors present within the AA boundary.	One contaminant / toxicity stressors present within the AA boundary.	Two contaminant / toxicity stressors present within the AA boundary.	Three contaminant / toxicity stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score		20	Total Score:		1.00				
											b. Contaminant Score		20	40						

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.69

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW227TMM	W149D	41.219088	-78.552983	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X			
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		3		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Attachment F

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/10/17	0.10	Pond 06	0.10	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.724942	-78.456237	WD090TMM, Pond/PUB wetland		

General Comments: Pond/PUB wetland located in man-made quarry pit (0.10 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes entire 0.10 acre of pond/PUB wetland. Wetland delineated as 0.089 acres and impacts are 0.089 acres (impact size and AA size rounded up for form).

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																											
	Optimal					Suboptimal					Marginal						Poor																										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.											
SCORE																20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1								
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																										Total Score = SUM(%Areas*Scores)																	
2. Estimate the % area within each condition category. Calculators are provided for you below.																																											
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																											
Condition Category:																																											
Scoring:		% ZOI Area:		0%					0%					10%					10%					30%					50%					Total Score:									
		Score:		15					13					12					7					4					1														
		Total Sub-score:		0.00					0.00					1.20					0.70					1.20					0.50														
																																							0.18				

Comments: Area includes forest with maintained understory, roads, industrial areas, and cleared land.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																						
	Optimal					Suboptimal					Marginal						Poor						
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
Comments: Existing roads present.																							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20							
	Optimal					Suboptimal					Marginal						Poor						
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary		Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
															Condition Score		Weighting		Sub-Scores		0.70		
															a. Roadbed 0-100:		14		* (0.67)			9	
															b. Roadbed 100-300:		14		* (0.33)			5	
																			Total Score:			14	

Comments: Existing roads present.

3. Vegetation Condition Index

	Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	2019181716					1514131211					109876					54321																				
Comments: No Invasive Species identified in wetland AA.																																				
b. Vegetation	Condition Category																																			
	Optimal					Suboptimal					Marginal						Poor																			

Comments: No Invasive Species identified in wetland AA.

	Condition Category																				
b. Vegetation	Optimal					Suboptimal					Marginal					Poor					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40
SCORE	20 19	18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

Comments: Cleared areas and industrial areas that are mowed and maintained.	a. Invasive Sub-Score:		20	Total Score	0.78
	b. Vegetation Sub-Score:		11	31	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal			Marginal			Poor												
Hydrologic Modification Stressor Presence	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1	
Comments: Maintenance on industrial areas and runoff from roads.																	Score:		11		0.55

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal		Suboptimal					Marginal				Poor									
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.80
Comments: One stressor identified due to ROW maintenance.																Score:		16			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.																					

	Condition Category																				CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1				
Comments: No stressors identified.																a. Eutrophication Score					20		Total Score:			1.00
																b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.67

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/10/17	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD090TMM	Pond 06	41.724942	-78.456237	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	3			100-300 ft.	3		

Road Comments:

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:	X			
Total Number:		3		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/04/17	0.71	W004, W004B	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.703887	-78.496159	WD058ATMM, PEM wetland	

General Comments: PEM wetland located on hilltop depression. Multiple access roads cross the wetland channelizing it with culverts. PEM wetland adjacent to access roads, crosses well pad, and extends into maintained pipeline ROW (0.71 acres in ECL). PEM wetland upslope of existing ROW (4.32 acres delineated). PEM and PFO wetlands beyond existing ROW, downslope of Project (5.16 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area. AA includes 0.71 acres of PEM and 0.29 acres of PEM upslope of Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20						
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)													
	2. Estimate the % area within each condition category. Calculators are provided for you below.																									
	3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																									
Scoring:	Condition Category:																	Total Score:								
	% ZOI Area:		0%			0%		60%			0%			40%		0%										
	Score:		0			0		12			0			4		0										
	Total Sub-score:		0.00			0.00		7.20			0.00			1.60		0.00		8.80								
0.44																										

Comments: Area includes maintained pipeline ROW with access roads and gas well pad. Adjacent forest has maintained understory.

2. Roadbed Presence Index

Condition Categories																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No roadbeds present within 100 feet of the AA boundary					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				
	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Gravel access road to gas well pad.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					14					* (0.67)					9															
											b. Roadbed 100-300:					14					* (0.33)					5															
																					Total Score:					14					0.70										

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Gravel access road to gas well pad.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																		
a. Invasive Species Presence	Condition Category																																	
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No invasives present. Low Optimal: <5% of the total AA contains invasive species.	High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Poor: > 50% of the total AA contains invasive species.												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No Invasive Species identified in wetland AA.																																		
4. Hydrologic Modification Index																																		
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Poor: Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments:																																		
Maintained pipeline ROW and maintenance road/ATV trail.																																		
															a. Invasive Sub-Score:		20	Total Score:		32	0.80													
															b. Vegetation Sub-Score:		12																	
5. Sediment Stressor Index																																		
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Poor: Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Ditch and culverts on access roads near gas well pad.																																		
															Score:		12			0.60														
6. Water Quality Stressor Index																																		
Sediment Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Poor: Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Two stressors identified due to ROW maintenance, ATV use, and cleared area for gas well pad.																																		
															Score:		14			0.70														
7. Eutrophication Stressor Index																																		
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
8. Contaminant / Toxicity Stressor Index																																		
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
															a. Eutrophication Score		20	Total Score:		40	1.00													
															b. Contaminant Score		20																	
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																																		
															Overall Condition Index:		0.71																	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/04/17	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD058ATMM	W004, W0	41.703887	-78.496159	Pipeline access roads and gas well pad

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	3			100-300 ft.	3		

Road Comments: Dirt access road/atv trail used for pipeline inspection and maintenance. Gravel access road to gas well pad.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/04/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods	X		
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		3	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)	X		
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X		
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		2	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/4/17	0.40	W005	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier		41.706119	-78.490757	WD056JLM, PEM and PFO wetlands	

General Comments: PEM wetland in maintained pipeline ROW (0.55 acres in ECL). PFO wetland beyond existing ROW, downslope of Project (1.90 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.55 acres of PEM and 0.45 acres of PFO downslope of Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																			
	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																			
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																											Total Score:								
	% ZOI Area:		0%					0%					80%					0%					20%						0%							
	Score:		0					0					13					0					4						0							
	Total Sub-score:		0.00					0.00					10.40					0.00					0.80						0.00					11.20		

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20															
	Optimal				Suboptimal				Marginal				Poor																			
	High Optimal: No roadbeds present within 100 feet of the AA boundary				Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20															
	Optimal				Suboptimal				Marginal				Poor																			
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary				Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												

Condition Score		Weighting		Sub-Scores	
a. Roadbed 0-100:	17	*(0.67)		11	
b. Roadbed 100-300:	17	*(0.33)		6	
Total Score:				17	

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal				Poor									
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score		0.80	
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	<u>High Optimal:</u> No hydrologic stressors present within the AA boundary.		<u>Low Optimal:</u> One hydrologic stressor present within the AA boundary.			<u>High Suboptimal:</u> Two hydrologic stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three hydrologic stressors present within the AA boundary.			<u>High Marginal:</u> Four hydrologic stressors present within the AA boundary.		<u>Low Marginal:</u> Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.							
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																	Score:		17		0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor						
	<u>High Optimal:</u> No sediment stressors present within the AA boundary. <u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary. <u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.					<u>High Marginal:</u> Four sediment stressors present within the AA boundary. <u>Low Marginal:</u> Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:	17		0.85	

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					

Comments: No stressors identified.

	Condition Category															CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.82

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/4/17	J. Miner, C. Maier
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD056JLM	W005	41.706119	-78.490757	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/4/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/9/17	0.17	W006	0.37	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.707962	-78.487241	WD082JLM, PEM and PFO wetlands		

General Comments: Wetland begins within ROW and extends to the south. No wetlands to the north of the ROW. Disturbed by pipeline construction and maintenance. PEM wetland in maintained pipeline ROW (0.17 acres in ECL), PFO wetland beyond existing ROW, downslope of Project (0.12 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.25 acres of PEM and 0.12 acres of PFO downslope of Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																		CI = Total Score/20			
	Optimal					Suboptimal			Marginal			Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																				Total Score:	
	% ZOI Area:		0%			0%			80%			0%			20%			0%				
	Score:		0			0			13			0			4			0				
	Total Sub-score:		0.00			0.00			10.40			0.00			0.80			0.00				11.20
																					0.56	

2. Roadbed Presence Index

	Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.85															
											a. Roadbed 0-100:					17					* (0.67)						11														
											b. Roadbed 100-300:					17					* (0.33)						6														
																					Total Score:						17														

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category																CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal				Poor									
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:				20	Total Score		0.80		
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:				12	32				

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																		
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85													
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17																

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																		
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85													
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:						17												

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.																				

Comments: No stressors identified.

	Condition Category																			C1 = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.82

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/9/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD082JLM	W006	41.707962	-78.487241	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:		0-100 ft.	2		100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/9/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/9/17	1.02	W007, W007A, W007B	1.02	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.709785	-78.483244	WD083JLM, PEM and PFO wetlands		

General Comments: Wetland includes approximately 15-20 percent upland. Hummocky ground where the larger hummocks are upland, primarily around bases of maple trees, wetland in depressions between hummocks. Wetland drains to stream. PEM and PFO wetlands in maintained pipeline ROW (1.02 acres in ECL). PEM and PFO wetland beyond existing ROW, upslope and downslope of Project (2.35 acres delineated) beyond ECL. Impacts occur only to the PEM and PFO wetland area in the disturbed ROW. AA includes 0.82 acres of PEM (W007) and 0.20 acres of PFO (W007A and W007B) within the Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category																CI = Total Score/20											
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal			Poor														
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.										
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1								
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)															
Scoring:	Condition Category:																		Total Score:									
	% ZOI Area:		0%				0%				60%				10%													
	Score:		0				0				13				7													
	Total Sub-score:		0.00				0.00				7.80				0.70				1.20				0.00				9.70	
																				0.49								

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories																CI = Total Score/20																								
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
																	Condition Score					Weighting					Sub-Scores														
																	a. Roadbed 0-100:					17					* (0.67)					11									
																	b. Roadbed 100-300:					17					* (0.33)					6									
																											Total Score:					17									
																																0.85									

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No vegetation stressors present within the AA boundary.		Low Optimal: One vegetation stressor present within the AA boundary.			High Suboptimal: Two vegetation stressors present within the AA boundary.		Low Suboptimal: Three vegetation stressors present within the AA boundary.			High Marginal: Four vegetation stressors present within the AA boundary.		Low Marginal: Five vegetation stressors present within the AA boundary.			Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20		Total Score		0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12		32		

4. Hydrologic Modification Index

	Condition Category																	CI = Total Score/20						
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																	Score:	17			0.85			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.			Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40									
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor														
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.														
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1								
Comments: No stressors identified.																					a. Eutrophication Score					20		Total Score:		1.00
																					b. Contaminant Score					20		40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/9/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD083JLM	W007, W007A, W007B	41.709785	-78.483244	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/9/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/9/17	0.10	W008	0.28	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.710627	-78.481262	RW080JLM, PEM wetland		

General Comments: PEM wetland in maintained pipeline ROW (0.10 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.18 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes entire 0.28 acres of PEM delineated within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20									
	Optimal					Suboptimal					Marginal			Poor											
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1				
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)												
Scoring:	Condition Category:																			Total Score:					
	% ZOI Area:		0%				0%				65%			5%			30%						0%		
	Score:		0				0				13				7			4			0				
	Total Sub-score:		0.00				0.00				8.45				0.35			1.20			0.00			10.00	
																				0.50					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40	
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor											
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20	Total Score				0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32				

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20								
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:		17			0.85				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/9/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
RW080JLM	W008	41.710627	-78.481262	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/9/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

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Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/9/17	1.28	W009, W009A, W009B, Pond 03	1.28
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.71172	41.710627	RW081JLM, PEM and PFO wetlands	

General Comments: Perennial stream runs through wetlands and connects to two ponds. Wetlands drain to stream. Wetlands and pond in maintained pipeline ROW (1.28 acres in ECL). PEM and PFO wetland beyond existing ROW, upslope and downslope of Project (2.52 acres delineated) beyond ECL. Impacts occur only to the PEM and PFO wetland area in the disturbed ROW. AA includes 1.09 acres of PEM (W009), 0.17 acres of PFO (W009A and W009B), and 0.02 acres of Pond 03 within the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20				
	Optimal					Suboptimal					Marginal				Poor						
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.				High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																					
2. Estimate the % area within each condition category. Calculators are provided for you below.																					
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																					
Scoring:	Condition Category:																				
	% ZOI Area:	0%					0%		60%		10%		30%				0%		Total Score:		
	Score:	0					0		13		7		4				0				
	Total Sub-score:	0.00					0.00		7.80		0.70		1.20				0.00		9.70		
0.49																					

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
																Condition Score					Weighting					Sub-Scores															
																a. Roadbed 0-100:					17					* (0.67)					11										
																b. Roadbed 100-300:					17					* (0.33)					6										
																										Total Score:					17					0.85					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

3. Vegetation Condition Index

Condition Category																
a. Invasive	Optimal				Suboptimal				Marginal				Poor			

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Species Presence	High Optimal: No invasives present.		Low Optimal: <5% of the total AA contains invasive species.			High Suboptimal: >5% but less than 10% of the total AA contains invasive species.		Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.			High Marginal: >20% but less than 30% of the total AA contains invasive species.			Low Marginal: >30% but less than 50% of the total AA contains invasive species.			> 50% of the total AA contains invasive species.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.				High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.				High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score			0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32			

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.				High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.				High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.				Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.											Score:					17				

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.				High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.				High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.				Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance and ATV use.											Score:					17				

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score					20	Total Score:			1.00
											b. Contaminant Score					20	40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/9/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW081JLM	W009, W009A, W009B, Pond 03	41.71172	41.710627	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/9/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/09/17	1.44	W010, W010A, W010B	1.44
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.713516	-78.476277	WD089TMM, PEM and PFO wetlands	

General Comments: PEM wetland located on hillside and extends into valley bottom draining into stream. PEM wetland adjacent to forest and occurs within maintained pipeline ROW (1.22 acres in ECL). PEM wetland continues downslope of existing ROW (0.91 acres delineated). PFO wetlands beyond existing ROW, upslope of Project (3.39 acres delineated) beyond ECL. Impacts mainly occur to the PEM wetland area, but also include a small portion of the PFO wetland area. AA includes 1.22 acres of PEM (W010) and 0.22 acres of PFO (W010A and W010B) upslope of Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category																		CI = Total Score/20							
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)													
	Condition Category:																									
	Scoring:	% ZOI Area:		0%					80%					0%		20%				0%			Total Score:			
Score:		0					12					0		4			0									
Total Sub-score:		0.00					0.00					9.60		0.00		0.80			0.00			10.40				
0.52																										

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.85															
											a. Roadbed 0-100:					17					* (0.67)						11														
											b. Roadbed 100-300:					17					* (0.33)						6														
																					Total Score:						17														

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20	Total Score					0.80														
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32																			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17								

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40	
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score						20		Total Score:		1.00
											b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/09/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD089TMM	W010, W010A, W010B	41.713516	-78.476277	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/09/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/09/17	0.03	W011	0.06
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.714529	-78.474155	RW087ATMM, PEM wetland	

General Comments: PEM wetland located on hillside below intermittent stream, adjacent to forest, and occurs within maintained pipeline ROW (0.02 acres in ECL). PEM wetland continues downslope of Project (0.03 acres delineated) beyond ECL. AA includes entire 0.06 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

		Condition Category															CI = Total Score/20																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE		20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1																			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
		Condition Category:																																		
Scoring:		% ZOI Area:		0%					0%					70%					0%					30%					0%					Total Score:		
		Score:		0					0					12					0					4					0							
		Total Sub-score:		0.00					0.00					8.40					0.00					1.20					0.00					9.60		
																																		0.48		

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1																				
											Condition Score					Weighting		Sub-Scores																							
											a. Roadbed 0-100:					17		* (0.67)		11																					
											b. Roadbed 100-300:					17		* (0.33)		6																					
																		Total Score:		17																					
																				0.85																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20	Total Score					0.80														
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32																			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70					
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Two culverts in wetland on intermittent stream.																Score:		14								

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal					Suboptimal				Marginal			Poor									
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.				Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17				

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor							
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
Comments: No stressors identified.																a. Eutrophication Score				20	Total Score:		1.00
																b. Contaminant Score				20	40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.78

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/09/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
RW087ATMM	W011	41.714529	-78.474155	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/09/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	2		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/08/17	0.02	W014	0.09
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.716949	-78.470716	WD079TMM, PEM wetland	

General Comments: PEM wetland located on hillside below intermittent stream, adjacent to forest, and occurs within maintained pipeline ROW (0.02 acres in ECL). PEM wetland continues upslope of Project (0.07 acres delineated) beyond ECL. AA includes entire 0.09 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

1. Wetland Zone of Influence Scoring Index																																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.													Total Score = SUM(%Areas*Scores)																						
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																																		
	% ZOI Area:		0%				0%				40%				0%				20%																
	Score:		0				0				12				0				4																
	Total Sub-score:		0.00				0.00				4.80				0.00				1.60																
		0.00				0.00				4.80				0.00				1.60				0.40				6.80									
CI = Total Score/20																																			
0.34																																			

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor					
	<u>High Optimal:</u> No invasives present.		<u>Low Optimal:</u> <5% of the total AA contains invasive species.			<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.		<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.			<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.		<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.			> 50% of the total AA contains invasive species.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40													
b. Vegetation Stressor Presence	Optimal				Suboptimal				Marginal				Poor																
	High Optimal: No vegetation stressors present within the AA boundary.				Low Optimal: One vegetation stressor present within the AA boundary.				High Suboptimal: Two vegetation stressors present within the AA boundary.				Low Suboptimal: Three vegetation stressors present within the AA boundary.				High Marginal: Four vegetation stressors present within the AA boundary.				Low Marginal: Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									
Comments:											a. Invasive Sub-Score:				20		Total Score		0.80										
Area includes maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:				12		32												

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No hydrologic stressors present within the AA boundary.					<u>Low Optimal:</u> One hydrologic stressor present within the AA boundary.					<u>High Suboptimal:</u> Two hydrologic stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three hydrologic stressors present within the AA boundary.					<u>High Marginal:</u> Four hydrologic stressors present within the AA boundary.					<u>Low Marginal:</u> Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70															
Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.																Score:		14																		

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17				

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category															CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/08/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD079TMM	W014	41.716949	-78.470716	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/08/17	0.01	W015	0.04	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.716675	-78.47027	RW079ATMM, PEM wetland		

General Comments: PEM wetland located on hillside below culvert, adjacent to forest, and occurs within maintained pipeline ROW (0.01 acres in ECL). Intermittent stream runs through wetland. PEM wetland continues downslope of Project (0.03 acres delineated) beyond ECL. AA includes entire 0.04 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																CI = Total Score/20				
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal				Poor						
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																				
	% ZOI Area:		0%		0%		50%		0%		40%		10%							Total Score:	
	Score:		0		0		12		0		4		2								
	Total Sub-score:		0.00		0.00		6.00		0.00		1.60		0.20		7.80						
																				0.39	

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Agricultural plot and other wetlands occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																		
		Optimal					Suboptimal					Marginal					Poor			
		High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

[illegible]

	Condition Categories															CI = Total Score/20					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary	Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.	High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.	High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
																0.85					
											Condition Score			Weighting			Sub-Scores				
											a. Roadbed 0-100:			17			* (0.67)		11		
											b. Roadbed 100-300:			17			* (0.33)		6		
																Total Score:		17			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																					
a. Invasive Species Presence	Condition Category																				
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No invasives present. Low Optimal: <5% of the total AA contains invasive species.	High Suboptimal: >5% but less than 10% of the total AA contains invasive species. Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species. Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Poor: > 50% of the total AA contains invasive species.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No Invasive Species identified in wetland AA.																					
4. Hydrologic Modification Index																					
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No vegetation stressors present within the AA boundary. Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary. Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary. Low Marginal: Five vegetation stressors present within the AA boundary.					Poor: Greater than five vegetation stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Area includes maintained pipeline ROW and maintenance road/ATV trail.																					
															a. Invasive Sub-Score:		20	Total Score:		32	0.80
															b. Vegetation Sub-Score:		12				
5. Sediment Stressor Index																					
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No hydrologic stressors present within the AA boundary. Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary. Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary. Low Marginal: Five hydrologic stressors present within the AA boundary.					Poor: Greater than five hydrologic stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.																					
															Score:		14			0.70	
6. Water Quality Stressor Index																					
Sediment Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No sediment stressors present within the AA boundary. Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary. Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary. Low Marginal: Five sediment stressors present within the AA boundary.					Poor: Greater than five sediment stressors present within the AA boundary.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: One stressor identified due to ROW maintenance and ATV use.																					
															Score:		17			0.85	
7. Eutrophication Stressor Index																					
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					
8. Contaminant / Toxicity Stressor Index																					
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40					
	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					
															a. Eutrophication Score		20	Total Score:		40	1.00
															b. Contaminant Score		20				
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.															Overall Condition Index:					0.77	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/08/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
RW079ATMM	W015	41.716675	-78.47027	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/08/17	0.41	W016, W016A, W016B	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.720256	-78.465447	WD081TMM, PEM and PFO wetlands		

General Comments: PEM wetland located in valley bottom. Multiple man-made ponds and intermittent streams within wetland boundary. PEM wetland occurs within maintained pipeline ROW (0.40 acres in ECL) and is adjacent to forest. PEM wetland continues downslope of Project (0.12 acres delineated) beyond ECL. PFO wetland occurs partially within pipeline ROW (0.01 acres in ECL) and extends upslope of Project (0.97 acres delineated) beyond ECL. AA includes 0.52 acres of the PEM wetlands (W016A and W016B) and 0.48 acres of the PFO wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20														
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																					
Condition Category:																																		
Scoring:	% ZOI Area:	0%				0%				80%				0%				20%				0%				Total Score:								
	Score:	0				0				12				0				4				0												
	Total Sub-score:	0.00				0.00				9.60				0.00				0.80				0.00					10.40							
																					0.52													

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40						
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal			Poor									
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.				<u>High Suboptimal:</u> Three vegetation stressors present within the AA boundary.			<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.				<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.			Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments:											a. Invasive Sub-Score:						20		Total Score		0.80	
Area includes maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:						12		32			

Area includes maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.																Score:		14			

Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20								
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: One stressor identified due to ROW maintenance and ATV use.																	Score:		17			0.85		

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor									
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1			
Comments: No stressors identified.																a. Eutrophication Score					20		Total Score:		1.00
																b. Contaminant Score					20		40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.79

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/08/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD081TMM	W016, W016A, W016B	41.720256	-78.465447	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	4	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/08/17	0.01	W018	0.02	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.726217	-78.452289	RW083ATMM, PEM and PFO wetlands		

General Comments: PEM wetland adjacent to forest and occurs within maintained pipeline ROW (0.01 acres in ECL). PEM wetland continues downslope of Project (0.01 acres delineated) beyond ECL. Intermittent stream runs through wetland. AA includes entire 0.02 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category															CI = Total Score/20										
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal			Marginal			Poor														
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
	SCORE					20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3	2	1
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)									
	2. Estimate the % area within each condition category. Calculators are provided for you below.																									
	3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																									
Scoring:	Condition Category:																									
	% ZOI Area:		0%			0%			80%			0%			20%			0%			Total Score:					
	Score:		0			0			12			0			4			0								
	Total Sub-score:		0.00			0.00			9.60			0.00			0.80			0.00			10.40					
0.52																										

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Stream and culverts occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor										
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20														
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 to 4 or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										
											Condition Score					Weighting			Sub-Scores											
											a. Roadbed 0-100:					17			* (0.67)			11								
											b. Roadbed 100-300:					17			* (0.33)			6								
																					Total Score:			17						
																								0.85						

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																		
a. Invasive Species Presence	Condition Category																																	
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Poor: > 50% of the total AA contains invasive species.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No Invasive Species identified in wetland AA.																																		
4. Hydrologic Modification Index																																		
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Poor: Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Area includes maintained pipeline ROW and maintenance road/ATV trail.																																		
															a. Invasive Sub-Score:		20		Total Score				0.80											
															b. Vegetation Sub-Score:		12																	
5. Sediment Stressor Index																																		
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Poor: Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Two stressors identified due to culvert, and ROW alteration caused by pipeline maintenance and ATV use.																																		
															Score:		14				0.70													
6. Water Quality Stressor Index																																		
Sediment Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Poor: Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: One stressor identified due to ROW maintenance and ATV use.																																		
															Score:		17				0.85													
7. Water Quality Stressor Index																																		
a. Eutrophication Stressor Presence	Condition Category																																	
	Optimal					Suboptimal					Marginal						Poor																	
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
8. Water Quality Stressor Index																																		
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
															a. Eutrophication Score		20		Total Score:				1.00											
															b. Contaminant Score		20																	
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																																		
															Overall Condition Index:		0.79																	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/08/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
RW083ATMM	W018	41.726217	-78.452289	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/10/17	0.72	W020, W020A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.729827	-78.447915	WD092TMM, PFO and PEM wetland		

General Comments: Large PEM and PFO wetland complex with streams throughout. PFO wetland located in valley bottom in existing pipeline ROW (0.23 acres in ECL) and forested hillside. PFO wetland continues upslope of Project (0.45 acres delineated) beyond ECL. PEM wetland occurs within maintained pipeline ROW (0.49 acres in ECL) and continues downslope of Project (0.70 acres delineated) beyond ECL. Impacts occur within both the PEM and PFO wetland. AA includes 0.72 acres of the proposed impacted area to PEM and PFO wetland, and 0.28 acres of the wetland complex that will not be impacted.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20														
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																					
Scoring:	Condition Category:																																	
	% ZOI Area:		0%			0%			90%			0%			10%			0%			Total Score:													
	Score:		0			0			12			0			4			0																
	Total Sub-score:		0.00			0.00			10.80			0.00			0.40			0.00			11.20													
																					0.56													

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40																
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal					Poor																				
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.					<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.					
	SCORE					20	19	18	17	16	15	14	13	12	11	10					9	8	7	6	5					4	3	2	1			
Comments:																a. Invasive Sub-Score:					20					Total Score					0.80					
Area includes maintained pipeline ROW and maintenance road/ATV trail.																b. Vegetation Sub-Score:					12					32										

Comments:

Area includes maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

		Condition Category															CI = Total Score/20			
Hydrologic Modification Stressor Presence	Optimal		Suboptimal				Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.													
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3
Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.																	Score: 17		0.85	

Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category															CI = Total Score/20						
	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17				

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.						a. Eutrophication Score										20		Total Score:			1.00
						b. Contaminant Score										20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.82

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/10/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD092TMM	W020, W020A	41.729827	-78.447915	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17 Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X		1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/10/17	0.81	W023	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.731417	-78.445781	WD095JLM, PEM wetland	
General Comments: Seep wetland extends across ROW and connects to stream. PEM wetland in maintained pipeline ROW (0.81 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.73 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 1.00 acre of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category												CI = Total Score/20							
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)							
Scoring:	Condition Category:																		Total Score:	
	% ZOI Area:		0%		0%		60%		10%		30%		0%							
	Score:		0		0		13		7		4		0							
	Total Sub-score:		0.00		0.00		7.80		0.70		1.20		0.00		9.70				0.49	

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and stream. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories												CI = Total Score/20							
	Optimal		Suboptimal		Marginal		Poor													
	High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.	High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories													CI = Total Score/20							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor													
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary	Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.	High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.	High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Condition Score													Weighting		Sub-Scores					
a. Roadbed 0-100:													17	* (0.67)		11				
b. Roadbed 100-300:													17	* (0.33)		6				
Total Score:															17					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor									
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.												
							20	19	18	17	16	15	14	13	12		11	10	9
Comments:					a. Invasive Sub-Score:					20		Total Score		0.80					
Maintained pipeline ROW and maintenance road/ATV trail.					b. Vegetation Sub-Score:					12		32							

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20				
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.													
	SCORE	20	19	18	17	16	15	14	13	12	11	10		9	8		7	6	5	4
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:	17			0.85	

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1				
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00					
																b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD095JLM	W023	41.731417	-78.445781	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/10/17	0.11	W025	0.25
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.732491	-78.444463	WD092JLM, PEM wetland	

General Comments: Seep wetland extends across ROW and connects to W026A. Seep wetland under forest canopy, trees are not within the seep. PEM wetland in maintained pipeline ROW (0.11 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.14 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.25 acre of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																											Total Score:								
Scoring:	% ZOI Area:	0%					0%					60%					10%					30%						0%							
	Score:	0					0					13					7					4						0							
	Total Sub-score:	0.00					0.00					7.80					0.70					1.20						0.00					9.70		

0.49

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and stream. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

Condition Score		Weighting		Sub-Scores	
a. Roadbed 0-100:	17	*(0.67)		11	
b. Roadbed 100-300:	17	*(0.33)		6	
Total Score:				17	

0.85

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40								
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor																		
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.																					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1							
Comments:																				a. Invasive Sub-Score:					13	Total Score		0.63
Maintained pipeline ROW and maintenance road/ATV trail.																				b. Vegetation Sub-Score:					12	25		

Comments:	Maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category														CI = Total Score/20									
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8		7	6	5	4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. One culvert in AA.																	Score:		14			0.70		

Comments: Within ROW alteration caused by pipeline maintenance and ATV use. One culvert in AA.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.75

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD092JLM	W025	41.732491	-78.444463	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
mivi		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>	<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/10/17	0.55	W026, W026A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.733336	-78.443875	WD079JLM and WD091JLM, PEM and PSS wetlands		

General Comments: Site mowed routinely across ROW. Willow community present. Distinct elevation/slope break at edge of floodplain. Large wetland complex, W079 is PSS/PEM and W091 is PSS. PSS/PEM wetlands in maintained pipeline ROW (0.55 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (3.10 acres delineated) beyond ECL. Impacts occur only to the PSS/PEM wetland area in the disturbed ROW. AA includes 0.55 acres of PSS/PEM within and 0.45 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category															CI = Total Score/20																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
	SCORE					20 19 18 17 16					15 14 13 12 11						10 9 8 7 6					5 4 3 2 1														
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)																			
Scoring:	Condition Category:																											Total Score:								
	% ZOI Area:		0%					0%					60%					10%					30%						0%							
	Score:		0					0					13					7					4						0							
	Total Sub-score:		0.00					0.00					7.80					0.70					1.20						0.00					9.70		
																						0.49														

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1																				
											Condition Score					Weighting					Sub-Scores					0.85															
											a. Roadbed 0-100:					17					* (0.67)						11														
											b. Roadbed 100-300:					17					* (0.33)						6														
																					Total Score:					17															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40	
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal				Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20	Total Score				0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32				

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20										
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor																
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1				
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. One culvert in AA.															Score:		14			0.70						

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.78

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD079JLM, WD091JLM	W026, W026A	41.733336	-78.443875	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/10/17	0.20	W027	0.59
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.733914	-78.443065	WD090JLM, PEM wetland	
General Comments: Site disturbed by pipeline construction and maintenance. Wetland connected to W026A. PEM wetland in maintained pipeline ROW (0.20 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.39 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.59 acres of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																											Total Score:								
Scoring:	% ZOI Area:	0%					0%					60%					10%					30%						0%							
	Score:	0					0					13					7					4						0							
	Total Sub-score:	0.00					0.00					7.80					0.70					1.20						0.00					9.70		

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																	Condition Score				Weighting				Sub-Scores				0.85											
																	a. Roadbed 0-100:				17				* (0.67)					11										
																	b. Roadbed 100-300:				17				* (0.33)					6										
																									Total Score:					17										
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40	
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal				Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20	Total Score				0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32				

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20								
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:		17					0.85		

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17				

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD090JLM	W027	41.733914	-78.443065	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/08/17	0.32	W028	0.46
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.738174	-78.439414	WD077JLM, PEM wetland	

General Comments: Site disturbed by pipeline construction and maintenance. Compacted soil and depressions within rutting. PEM wetland in maintained pipeline ROW (0.32 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.14 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.46 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																																			
Scoring:	% ZOI Area:	0%					0%					70%					0%					30%					0%					Total Score:			
	Score:	0					0					13					0					4					0								
	Total Sub-score:	0.00					0.00					9.10					0.00					1.20					0.00						10.30		

0.52

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Condition Score																	Weighting					Sub-Scores																		
a. Roadbed 0-100:																	17					* (0.67)					11													
b. Roadbed 100-300:																	17					* (0.33)					6													
Total Score:																						17																		

0.85

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40	
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal				Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20	Total Score				0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32				

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20								
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:		17			0.85				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/08/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD077JLM	W028	41.738174	-78.439414	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/08/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
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bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
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calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
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ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/10/17	0.17	W029	0.21
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.740056	-78.435178	WD089JLM, PEM wetland	

General Comments: Site disturbed by pipeline construction and maintenance. Small depression confined to ROW with compacted soils. Adjacent forest all upland. PEM wetland in maintained pipeline ROW (0.17 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.04 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.21 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index																					
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category										CI = Total Score/20										
	Optimal		Suboptimal		Marginal		Poor														
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.											Total Score = SUM(%Areas*Scores)					0.52					
2. Estimate the % area within each condition category. Calculators are provided for you below.																					
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																					
Scoring:	Condition Category:																				
	% ZOI Area:		0%		0%		70%		0%		30%		0%								
	Score:		0		0		13		0		4		0								
Total Sub-score:		0.00		0.00		9.10		0.00		1.20		0.00									

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.	High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories											CI = Total Score/20																						
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor																										
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary	Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.	Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.	High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.	Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.	High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.	Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.																									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1													
<table border="1"> <tr> <th colspan="2">Condition Score</th><th colspan="2">Weighting</th><th colspan="2">Sub-Scores</th></tr> <tr> <td>a. Roadbed 0-100:</td><td>17</td><td>*(0.67)</td><td colspan="2">11</td></tr> <tr> <td>b. Roadbed 100-300:</td><td>17</td><td>*(0.33)</td><td colspan="2">6</td></tr> <tr> <td colspan="2">Total Score:</td><td colspan="2"></td><td colspan="2">17</td></tr> </table>											Condition Score		Weighting		Sub-Scores		a. Roadbed 0-100:	17	*(0.67)	11		b. Roadbed 100-300:	17	*(0.33)	6		Total Score:				17		0.85
Condition Score		Weighting		Sub-Scores																													
a. Roadbed 0-100:	17	*(0.67)	11																														
b. Roadbed 100-300:	17	*(0.33)	6																														
Total Score:				17																													

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor									
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.												
							20	19	18	17	16	15	14	13	12		11	10	9
Comments:					a. Invasive Sub-Score:					20		Total Score		0.80					
Maintained pipeline ROW and maintenance road/ATV trail.					b. Vegetation Sub-Score:					12		32							

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20								
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:		17			0.85				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17				

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1				
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00					
																b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/10/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD077JLM	W029	41.740056	-78.435178	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/10/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/07/17	0.33	W031, W031A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.74408	-78.426119	WD078TMM, PFO and PEM wetland		

General Comments: Large PEM and PFO wetland complex. Two ephemeral streams occur within the PEM wetland. PFO wetland located on forested hilltop and is fed by multiple seeps that drain into stream at headwaters. PFO wetland occurs in existing pipeline ROW (0.15 acres in ECL) and continues upslope of Project (1.98 acres delineated) beyond ECL. PEM wetland occurs within maintained pipeline ROW (0.18 acres in ECL) and continues downslope of Project (0.10 acres delineated) beyond ECL. Impacts occur within both the PEM and PFO wetland. AA includes 0.33 acres of the proposed impacted area to PEM and PFO wetland, and 0.67 acres of the wetland complex that will not be impacted.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20		
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor						
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																	Total Score:				
	% ZOI Area:		0%			0%			80%			0%			0%							
	Score:		0			0			12			0			4			0				
	Total Sub-score:		0.00			0.00			9.60			0.00			0.80			0.00			10.40	
																			0.52			

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Streams and other wetlands occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																								
	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.83															
											a. Roadbed 0-100:					17					* (0.67)						11														
											b. Roadbed 100-300:					16					* (0.33)						5														
																					Total Score:						17														

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Temporary dirt access road connecting to pipeline ROW.

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40	
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor											
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20	Total Score				0.80
Area includes maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	32				

Comments:
Area includes maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Two stressors identified due to culverts, and ROW alteration caused by pipeline maintenance and ATV use.																Score:		14			

Comments: Two stressors identified due to culverts, and ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20							
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor													
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.				High Marginal: Four sediment stressors present within the AA boundary.			Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.			
	SCORE	20	19	18	17	16	15	14	13	12	11	10		9	8		7	6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:			17			0.85		

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor									
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1			
Comments: No stressors identified.																a. Eutrophication Score					20		Total Score:		1.00
																b. Contaminant Score					20		40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.78

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/07/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD078TMM	W031, W031A	41.74408	-78.426119	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Temporary dirt access road connecting to pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	2		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/06/17	0.04	W034	0.35	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.752795	-78.396898	WD071TMM, PSS wetland		

General Comments: PSS wetland located in relic slough within floodplain of stream. Wetland occurs in maintained pipeline ROW (0.04 acres in ECL) and continues downslope of Project (0.31 acres delineated) beyond ECL. AA includes entire 0.35 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																		CI = Total Score/20	
	Optimal					Suboptimal					Marginal					Poor				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)							
Scoring:	Condition Category:																			
	% ZOI Area:		0%		0%		30%		20%		30%		20%						Total Score:	
	Score:		0		0		12		7		4		2							
	Total Sub-score:		0.00		0.00		3.60		1.40		1.20		0.40		6.60					
																				0.33

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Streams, other wetlands, cleared areas and agricultural land occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

		Condition Categories																		
		Optimal					Suboptimal					Marginal			Poor					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20															
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor														
	High Optimal:		Low Optimal:			High Suboptimal:		Low Suboptimal:			High Marginal:		Low Marginal:				High Poor:		Low Poor:												
	No roadbeds present within 100 - 300 feet of the AA boundary		Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
											Condition Score					Weighting					Sub-Scores										
											a. Roadbed 0-100:					17					* (0.67)					11					
											b. Roadbed 100-300:					14					* (0.33)					5					
																					Total Score:					16					0.80

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Temporary dirt access road connecting paved road to pipeline ROW.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

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3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40					
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal			Poor								
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.				<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.			<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:					20		Total Score			0.73
Area includes maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					9		29			

Area includes maintained pipeline ROW and maintenance road/ATV trail.

Cleared area and agricultural land occur in and around wetland.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor					CI = Total Score/20						
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Two stressors identified due to agriculture, and ROW alteration caused by pipeline maintenance and ATV use.																Score:	14				

Comments: Two stressors identified due to agriculture, and ROW alteration caused by pipeline maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1				
Comments: No stressors identified.											a. Eutrophication Score					20					Total Score:					1.00
											b. Contaminant Score					20					40					

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/06/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD071TMM	W034	41.752795	-78.396898	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.	1	1	1
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	3		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Temporary dirt access road connecting paved road to pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)	X			
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X		1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

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(Document No. 310-2137-002)

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Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/06/17	0.07	W035	1.00	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
T. Malecki, M. Groomer	41.754615	-78.398383	WD071TMM, PSS and PEM wetland

General Comments: Large PEM and PSS wetland complex. Two streams occur within the wetland complex. PSS wetlands located within relic slough within floodplain of stream. The PSS wetland (W035) occurs within maintained pipeline ROW (0.05 acres in ECL) and continues upslope of Project (3.30 acres delineated) beyond ECL. The PEM wetland occurs within an access road (0.02 acres in ECL) and continues upslope of Project (1.11 acres delineated) beyond ECL. Impacts occur within both the PEM and PSS wetlands. AA includes 0.07 acres of the proposed impacted area to PEM and PSS wetlands, and 0.93 acres of the wetland complex that will not be impacted.

1. Wetland Zone of Influence Condition Index

1. Wetland Zone of Influence Condition Index																																							
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																						
	Optimal					Suboptimal					Marginal					Poor																							
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.													Total Score = SUM(%Areas*Scores)																										
2. Estimate the % area within each condition category. Calculators are provided for you below.																																							
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																							
Scoring:	Condition Category:																																						
	% ZOI Area:					0%					20%					40%					20%					Total Score:													
	Score:					0					12					7					4										2								
	Total Sub-score:					0.00					0.00					2.40					1.40					1.60					0.40					5.80			
CI = Total Score/20																																							
0.29																																							

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Streams, other wetlands, cleared areas and agricultural land occur within ZOI. Adjacent forest has maintained understory.

2. Roadbed Presence Index

2. Roadbed Presence Index																																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																					
		Optimal										Suboptimal					Marginal				Poor																		
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					17					* (0.67)					11															
											b. Roadbed 100-300:					14					* (0.33)					5															
																					Total Score:					16															
																										0.80															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Temporary dirt access road connecting paved road to pipeline ROW.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40						
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal			Poor								
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments:											a. Invasive Sub-Score:					20	Total Score					0.73
Area includes maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					9	29					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					0.85															
Comments: One stressor identified due to ROW alteration caused by pipeline maintenance and ATV use.															Score: 17																					

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70															
Comments: Two stressors identified due to agriculture, and ROW alteration caused by pipeline maintenance and ATV use.																Score:		14																		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category															CI = Total Score/40									
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor								
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: No stressors identified.																a. Eutrophication Score					20		Total Score:		1.00
																b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/06/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD071TMM	W035, W035A	41.754615	-78.398383	Pipeline access road/ATV trail				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.	1	1	1
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	3		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Temporary dirt access road connecting paved road to pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)	X			
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X		1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/06/17	0.17	W037B, W037C	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.753999	-78.394842	RW068CJLM, PEM and PSS wetlands	

General Comments: Seasonal wet back channel to Potato Creek. PEM and PSS wetland in maintained pipeline ROW (0.17 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (2.28 acres delineated) beyond ECL. Impacts occur only to the PEM and PSS wetland area in the disturbed ROW. AA includes 1.00 acre of PEM and PSS within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																											Total Score:								
Scoring:	% ZOI Area:	0%					0%					25%					25%					50%						5%							
	Score:	0					0					13					7					4						1							
	Total Sub-score:	0.00					0.00					3.25					1.75					2.00						0.05					7.05		

0.35

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, a stream, agricultural pasture, and a paved road. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Condition Score																	Weighting					Sub-Scores																		
a. Roadbed 0-100:																	17					* (0.67)					11													
b. Roadbed 100-300:																	14					* (0.33)					5													
Total Score:																						16																		

0.80

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Paved road within 300 feet of AA,

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category																			CI = Total Score/40
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					18	Total Score		0.75	
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12	30			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																																													
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor																																																			
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.																																									
	20			19			18			17			16				15			14			13			12			11			10			9			8			7			6			5			4			3			2			1		
	SCORE																																																												
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:					17					0.85																																				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor			CI = Total Score/20								
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17				

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1				
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00					
																b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.77

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/06/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW068CJLM	W037B, W037C	41.753999	-78.394842	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Paved road within 300 feet of AA.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
loja	1								

Total % relative cover of all invasives, collectively on site: 1 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/07/17	0.15	W039	0.48	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.7548	-78.395648	WD074TMM, PEM wetland		

General Comments: PEM wetland located in between stream and gas compressor station. Wetland occurs in maintained pipeline ROW (0.15 acres in ECL) and continues upslope of Project (0.33 acres delineated) beyond ECL. AA includes entire 0.48 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.											Total Score = SUM(%Areas*Scores)																									
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					20%					0%						70%					10%							
	Score:		0					0					12					0						4					2							
	Total Sub-score:		0.00					0.00					2.40					0.00						2.80					0.20					5.40		
Comments: Area includes stream, maintained pipeline ROW with access roads and gas compressor station. Adjacent forest has maintained understory.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Gravel access road to gas compressor station.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
											Condition Score					Weighting					Sub-Scores																			
											a. Roadbed 0-100:					14					* (0.67)					9														
											b. Roadbed 100-300:					14					* (0.33)					5														
																Total Score:					14																			
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Gravel access road to gas compressor station.																																								

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

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3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
											5	4	3	2	1

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments:											a. Invasive Sub-Score:				
Maintained pipeline ROW and maintenance road/ATV trail.											20				
											b. Vegetation Sub-Score:				
											12				
											Total Score				
											32				
											0.80				

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.											Score:				
											17				
											0.85				

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: Two stressors identified due to ROW maintenance, ATV use, and cleared area for gas well pad.											Score:				
											14				
											0.70				

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
											Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
											Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
													5	4	3
													2	1	
Comments: No stressors identified.											a. Eutrophication Score				
											20				
											b. Contaminant Score				
											20				
											Total Score:				
											40				
											1.00				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.72

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/07/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD074TMM	W039	41.7548	-78.395648	Pipeline access roads and gas compressor station				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	3			100-300 ft.	3		
Road Comments: Dirt access road/atv trail used for pipeline inspection and maintenance. Gravel access road to gas compressor station.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X		
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		2	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/06/17	0.01	W041	0.32
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.754799	-78.3941	WD068JLM, PEM wetland	

General Comments: Seasonal wet back channel to Potato Creek. PEM wetland in maintained pipeline ROW (0.001 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.31 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.32 acre of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory. <u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover. <u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition. <u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.											Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																		Total Score:	
	% ZOI Area:		0%		0%		25%		25%		30%		20%							
	Score:		0		0		13		7		4		1							
	Total Sub-score:		0.00		0.00		3.25		1.75		1.20		0.20		6.40				0.32	

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, a stream, agricultural pasture, development, and a paved road. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4. <u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8. <u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12. <u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories											CI = Total Score/20												
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor																
		<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4. <u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8. <u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12. <u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
<table border="1"> <thead> <tr> <th>Condition Score</th> <th>Weighting</th> <th>Sub-Scores</th> </tr> </thead> <tbody> <tr> <td>a. Roadbed 0-100:</td> <td>17</td> <td>*(0.67)</td> </tr> <tr> <td>b. Roadbed 100-300:</td> <td>12</td> <td>*(0.33)</td> </tr> <tr> <td colspan="2">Total Score:</td> <td>15</td> </tr> </tbody> </table>											Condition Score	Weighting	Sub-Scores	a. Roadbed 0-100:	17	*(0.67)	b. Roadbed 100-300:	12	*(0.33)	Total Score:		15	0.77
Condition Score	Weighting	Sub-Scores																					
a. Roadbed 0-100:	17	*(0.67)																					
b. Roadbed 100-300:	12	*(0.33)																					
Total Score:		15																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Paved road within 300 feet of AA.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										18	Total Score					0.75									
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12	30														

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																CI = Total Score/20									
	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17								

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/06/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD068JLM	W041	41.754799	-78.3941	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	5		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Paved road within 300 feet of AA.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
loja	1								

Total % relative cover of all invasives, collectively on site: 1 %

Comments:

Common Invasives/Aggressives List

<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>	<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/06/17	0.01	W042	0.02

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
J. Miner, C. Maier, M. Groomer	41.754463	-78.393417	WD070JLM, PEM wetland

General Comments: Small depression within a dirt road, intercepting drainage. Disturbed, base soil present due to disturbances. PEM wetland in maintained pipeline ROW (0.01 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.01 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.02 acre of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Condition Category																																		
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																		
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																		
Scoring:	Condition Category:																				Total Score:													
	% ZOI Area:		0%			0%			25%			25%			30%			20%																
	Score:		0			0			13			7			4			1																
	Total Sub-score:		0.00			0.00			3.25			1.75			1.20			0.20						6.40										
																				0.32														

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, a stream, agricultural pasture, development, and a paved road. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					17					* (0.67)					11															
											b. Roadbed 100-300:					12					* (0.33)					4					0.77										
																					Total Score:					15															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Paved road within 300 feet of AA.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										15	Total Score					0.68									
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12	27														

Comments:

Maintained pipeline ROW and maintenance road/ATV trail.

a. Invasive Sub-Score:	15	Total Score
b. Vegetation Sub-Score:	12	27

0.68

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20						
	Optimal			Suboptimal				Marginal				Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.		High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17				

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

Score: 17

0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17				

Comments: One stressor identified due to ROW maintenance and ATV use.

Score: 17

0.85

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40														
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor															
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
Comments: No stressors identified.											a. Eutrophication Score					20					Total Score:					1.00					
											b. Contaminant Score					20					40										

Comments: No stressors identified.

a. Eutrophication Score	20	Total Score:
b. Contaminant Score	20	40

1.00

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.74

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/06/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD070JLM	W042	41.754463	-78.393417	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	5		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading. Paved road within 300 feet of AA.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar		5							

Total % relative cover of all invasives, collectively on site: 5 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/06/17	0.05	W045	0.14
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.754627	-78.387443	RW072AJLM, PEM wetland	
General Comments: Adjacent to stream. PEM wetland in maintained pipeline ROW (0.05 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.09 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.14 acres of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																			
	Optimal					Suboptimal					Marginal						Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.											Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																						Total Score:												
	% ZOI Area:		0%				0%				60%				10%				30%				0%												
	Score:		0				0				13				7				4				0												
	Total Sub-score:		0.00				0.00				7.80				0.70				1.20				0.00				9.70								
																					0.49														

Comments: Area includes maintained pipeline ROW with access road/ATV trail, another wetland, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
											Condition Score					Weighting					Sub-Scores																			
											a. Roadbed 0-100:					17					* (0.67)					11														
											b. Roadbed 100-300:					17					* (0.33)					6														
																					Total Score:					17														
																					0.85																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										20					Total Score					0.80					
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12					32										

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal				Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.		High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																CI = Total Score/20									
	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17								

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/06/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW072AJLM	W045	41.754627	-78.387443	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/06/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/07/17	0.01	W049	0.03
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.757017	-78.379114	RW073DJLM, PEM wetland	
General Comments: Small seep under forest canopy and in ROW. Hillside slumps, seep forms a narrow wet swale. PEM wetland in maintained pipeline ROW (0.001 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.02 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.03 acres of PEM within and beyond the Project area.					

1. Wetland Zone of Influence Condition Index																							
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																						
	Optimal					Suboptimal			Marginal			Poor											
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)											
Scoring:	Condition Category:																		Total Score:				
	% ZOI Area:		0%		0%		70%		0%		30%		0%										
	Score:		0		0		13		0		4		0										
	Total Sub-score:		0.00		0.00		9.10		0.00		1.20		0.00		10.30								
Comments: Area includes maintained pipeline ROW with access road/ATV trail and other wetlands. Adjacent forest has maintained understory.																							

2. Roadbed Presence Index																									
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																								
	Optimal		Suboptimal			Marginal			Poor																
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.			Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																									

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																										
	Optimal		Suboptimal			Marginal			Poor																		
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary		Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.			Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1							
												Condition Score				Weighting				Sub-Scores							
												a. Roadbed 0-100:				17				* (0.67)				11			
												b. Roadbed 100-300:				17				* (0.33)				6			
																				Total Score:				17			
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.																											

CI = Total Score/20

0.52

CI = Total Score/20

0.85

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										20		Total Score		0.80											
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12		32													

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category																CI = Total Score/20									
	Optimal					Suboptimal					Marginal					Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17								

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/07/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW073DJLM	W049	41.757017	-78.379114	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/07/17	0.29	W051	0.56

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
J. Miner, C. Maier, M. Groomer	41.757017	-78.379114	RW073EJLM, PEM wetland

General Comments: Small seep under forest canopy and in ROW. Hillside slumps, seep forms a narrow wet swale. PEM wetland in maintained pipeline ROW (0.29 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.27 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.56 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)																			
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																																		
	% ZOI Area:		0%				0%				60%				5%				30%				5%				Total Score:								
	Score:		0				0				13				7				4				1												
	Total Sub-score:		0.00				0.00				7.80				0.35				1.20				0.05				9.40								
0.47																																			

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:										20		Total Score		0.80											
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:										12		32													

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal				Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

		Condition Category																																		
Sediment Stressor Presence	Optimal					Suboptimal					Marginal					Poor					CI = Total Score/20															
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.						High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.80

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/07/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW073EJLM	W051	41.757017	-78.379114	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/07/17	0.05	W054	0.07
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
J. Miner, C. Maier, M. Groomer		41.756895	-78.374947	WD075JLM, PEM wetland	

General Comments: Wetland connected to perennial stream and within floodplain. PEM wetland in maintained pipeline ROW (0.05 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.02 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.07 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category											CI = Total Score/20								
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)								
Scoring:	Condition Category:																			
	% ZOI Area:		0%		0%		50%		5%		40%		5%							
	Score:		0		0		13		7		4		1							
	Total Sub-score:		0.00		0.00		6.50		0.35		1.60		0.05		8.50					
0.43																				

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other wetlands, streams, and residential development. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories											CI = Total Score/20								
	Optimal		Suboptimal		Marginal		Poor													
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.			<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories												CI = Total Score/20								
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor													
		<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
												Condition Score		Weighting		Sub-Scores				
												a. Roadbed 0-100:		17		* (0.67)		11		
												b. Roadbed 100-300:		17		* (0.33)		6		
														Total Score:		17				

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

0.85

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																																				
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.					
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:																										0.80										
Maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score:										20		Total Score													
											b. Vegetation Sub-Score:										12		32													

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal				Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17		0.85																

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor								
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.								
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2
Comments: No stressors identified.											a. Eutrophication Score						20		Total Score:		1.00
											b. Contaminant Score						20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																Overall Condition Index: 0.80			

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/07/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD075JLM	W054	41.756895	-78.374947	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/07/17	0.15	W055	0.46	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
T. Malecki, M. Groomer	41.757137	-78.372617	WD074TMM, PEM wetland

General Comments: PEM wetland connected to perennial stream. Wetland occurs in maintained pipeline ROW (0.01 acres in ECL), continues upslope and downslope of Project (0.31 acres delineated) beyond ECL. AA includes entire 0.46 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

1. Wetland Zone of Influence Condition Index																																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																							
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																																		
	% ZOI Area:		0%				0%				20%				40%				20%																
	Score:		0				0				12				7				4																
	Total Sub-score:		0.00				0.00				2.40				1.40				1.60																
		0.00				0.00				2.40				1.40				1.60				0.20				5.60									
CI = Total Score/20																																			
0.28																																			

Comments: Area includes maintained pipeline ROW with access road/ATV trail, another wetland, a stream, development, and a paved road. Adjacent forest has maintained understory.

2. Roadbed Presence Index

2. Roadbed Presence Index																																					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																			
		Optimal					Suboptimal					Marginal					Poor																				
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories																			CI = Total Score/20																																
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																																				
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																
											Condition Score					Weighting					Sub-Scores																															
											a. Roadbed 0-100:					17					* (0.67)					11																										
											b. Roadbed 100-300:					13					* (0.33)					4																										
																					Total Score:					16																										
																														0.78																						

Comments: Dirt road leading to well pad and paved road within 300 feet.

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3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																CI = Total Score/40		
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal				Poor								
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.	<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.	<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.	<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.	<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.	<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.												
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3
SCORE																			
Comments:																			
Maintained pipeline ROW																			
a. Invasive Sub-Score:											20		Total Score		0.80				
b. Vegetation Sub-Score:											12		32						

Comments:
Maintained pipeline ROW

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal			Marginal			Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.				Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: Within ROW alteration caused by pipeline maintenance																	Score:		17		0.85

Comments: Within ROW alteration caused by pipeline maintenance

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal					Suboptimal				Marginal			Poor									
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.		High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance																Score:			17			0.85

Comments: One stressor identified due to ROW maintenance

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40										
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor															
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.															
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1									
Comments: No stressors identified.																a. Eutrophication Score					20					Total Score:					1.00
																b. Contaminant Score					20					40					

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/07/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD074TMM	W055	41.757137	-78.372617					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.	1	1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		
Road Comments: Maintained pipeline ROW, dirt road leading to well pad, and paved road.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/07/17	0.01	W056	0.02	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.757105	-78.372081	WD074TMM, PEM wetland		

General Comments: PEM wetland located between gas compressor station and perennial stream. Wetland occurs in maintained pipeline ROW (0.001 acres in ECL), continues upslope of Project (0.01 acres delineated) beyond ECL. AA includes entire 0.02 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20					
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal				Marginal				Poor											
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal:		Low Suboptimal:		High Marginal:		Low Marginal:		High Poor:		Low Poor:									
						ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)												
Condition Category:																									
Scoring:	% ZOI Area:	0%				0%				20%				40%				20%				Total Score:			
	Score:	0				0				12				7				4							
	Total Sub-score:	0.00				0.00				2.40				1.40				1.60				0.20			
																				0.28					

Comments: Area includes maintained pipeline ROW with access road/ATV trail, another wetland, a stream, development, and a paved road. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																									
	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					17					* (0.67)					11															
											b. Roadbed 100-300:					13					* (0.33)					4															
																					Total Score:					16															
																										0.78															

Comments: Dirt road leading to well pad and paved road within 300 feet.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score		0.80	
Maintained pipeline ROW											b. Vegetation Sub-Score:					12	32			

Comments:
Maintained pipeline ROW

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20			
Hydrologic Modification Stressor Presence	Optimal					Suboptimal			Marginal			Poor							
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.				Greater than five hydrologic stressors present within the AA boundary.		
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3
SCORE																			
Comments: Within ROW alteration caused by pipeline maintenance																Score:	17		0.85

Comments: Within ROW alteration caused by pipeline maintenance

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance																Score:		17				

Comments: One stressor identified due to ROW maintenance

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor									
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1			
Comments: No stressors identified.																a. Eutrophication Score					20		Total Score:		1.00
																b. Contaminant Score					20		40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/07/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD074TMM	W056	41.757105	-78.372081					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.	1	1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		
Road Comments: Maintained pipeline ROW, dirt road leading to well pad, and paved road.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/07/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/03/18	0.12	W059A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, M. Groomer		41.755869	-78.349029	WD211JLM, PEM and PFO wetlands		

General Comments: PEM wetland channelized across ROW. Broad channel with 6 inches of surface water. Channel drains through culvert. PEM wetland in maintained pipeline ROW (0.12 acres in ECL) and continues beyond existing ROW, upslope and downslope of Project (0.12 acres delineated) beyond ECL. Connected to PFO wetland downslope of the Project (1.27 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.24 acres of PEM and 0.76 acres of PFO within and beyond the Project area.

1. Wetland Zone of Influence Condition Index																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.		<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)								
2. Estimate the % area within each condition category. Calculators are provided for you below.																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																				
Scoring:	Condition Category:																			
	% ZOI Area:		0%		40%		20%		20%		20%		0%							
	Score:		0		13		9		7		4		0							
	Total Sub-score:		0.00		5.20		1.80		1.40		0.80		0.00		9.20					
0.46																				

Comments: Area includes maintained pipeline ROW with access road/ATV trail, another access road, wetlands, and a ditch. Adjacent forest has maintained understory.

2. Roadbed Presence Index																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories										CI = Total Score/20									
	Optimal		Suboptimal		Marginal		Poor													
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories											CI = Total Score/20									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal		Marginal		Poor													
		<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.		<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.		<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.		<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
						Condition Score					Weighting		Sub-Scores		0.70					
						a. Roadbed 0-100:					14		* (0.67)			9				
						b. Roadbed 100-300:					14		* (0.33)			5				
											Total Score:		14							

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																		
a. Invasive Species Presence	Condition Category																																	
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No Invasive Species identified in wetland AA.																																		
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Maintained pipeline ROW and maintenance road/ATV trail.																a. Invasive Sub-Score: 20					Total Score					0.80								
																b. Vegetation Sub-Score: 12					32													
4. Hydrologic Modification Index																																		
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Culvert draining wetland to ditch.																Score: 14					0.70													
5. Sediment Stressor Index																																		
Sediment Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: One stressor identified due to ROW maintenance and ATV use.																Score: 17					0.85													
6. Water Quality Stressor Index																																		
a. Eutrophication Stressor Presence	Condition Category																																	
	Optimal					Suboptimal					Marginal						Poor																	
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																a. Eutrophication Score 20					Total Score: 40					1.00								
																b. Contaminant Score 20					40													
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																Overall Condition Index: 0.75																		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/03/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD211JLM	W059A	41.755869	-78.349029	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/03/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/03/18	0.57	W061	1.00	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
J. Miner, M. Groomer	41.758834	-78.341033	WD209JLM, PEM wetland

General Comments: PEM wetland in maintained pipeline ROW (0.57 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (0.50 acres delineated) beyond ECL. Connected to PFO wetland downslope of the Project (0.85 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 1.00 acre of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category														
	Optimal					Suboptimal					Marginal				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
	SCORE					20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3	2	1										
Comments:																a. Invasive Sub-Score:					13					Total Score					0.63					
Maintained pipeline ROW and maintenance road/ATV trail.																b. Vegetation Sub-Score:					12					25										

Comments:	Maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17																		

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.				High Marginal: Four sediment stressors present within the AA boundary.			Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:	17	0.85			

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.77

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/03/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD209JLM	W061	41.758834	-78.341033	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/03/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
aggi2		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/02/17	0.45	W066A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, F. Davis, M. Groomer		41.760518	-78.337248	WD038JLM, PEM and PFO wetland		

General Comments: Small depressions on hilltop. Relatively indistinct and isolated depression/flat on hilltop. Wetland is disturbed in ROW by compaction and extends into forest. PEM wetland in maintained pipeline ROW (0.45 acres in ECL). Wetland continues beyond existing ROW, upslope and downslope of Project (1.63 acres delineated) beyond ECL. In between and connected to two PFO wetlands upslope and downslope of the Project (1.16 acres delineated) beyond ECL. Impacts occur only to the PEM and PFO wetland area in the disturbed ROW. AA includes 0.59 acres of PEM and PFO within the Project area and 0.41 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																					
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																				Total Score:															
	% ZOI Area:		0%			60%			10%			10%			20%			0%																		
	Score:		0			13			9			7			4			0																		
	Total Sub-score:		0.00			7.80			0.90			0.70			0.80			0.00			10.20															
																						0.51														

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40															
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal				Poor																	
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.				High Suboptimal: Two vegetation stressors present within the AA boundary.				Low Suboptimal: Three vegetation stressors present within the AA boundary.				High Marginal: Four vegetation stressors present within the AA boundary.				Low Marginal: Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
Comments:											a. Invasive Sub-Score:					20		Total Score					0.80								
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12		32													

Comments:	Maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20								
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
	SCORE			20	19	18	17	16	15	14	13	12	11	10	9		8	7	6	5	4	3	2	1
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.															Score:			17			0.85			

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17				

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/02/17	J. Miner, F. Davis, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD038JLM	W066A	41.760518	-78.337248	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/02/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/02/17	0.02	W067	0.04	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, F. Davis, M. Groomer		41.763338	-78.32955	WD037JLM, PEM wetland		

General Comments: Wetland restricted to floodplain/valley bottom of small creek. PEM wetland in maintained pipeline ROW (0.02 acres in ECL). Wetland continues beyond existing ROW, downslope of Project (0.02 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.04 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Condition Category																				CI = Total Score/20																
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																																			
	% ZOI Area:		0%				70%				0%				10%				20%				0%				Total Score:									
	Score:		0				13				0				7				4				0													
	Total Sub-score:		0.00				9.10				0.00				0.70				0.80				0.00				10.60									
																				0.53																

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																			
		Optimal					Suboptimal					Marginal					Poor				
		High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
		SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
																Condition Score					Weighting					Sub-Scores					0.85										
																a. Roadbed 0-100:					17					* (0.67)						11									
																b. Roadbed 100-300:					17					* (0.33)						6									
																										Total Score:					17										

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.						<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20					Total Score					0.80										
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12					32															

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20						
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85	
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20											
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor										
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.						High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85						
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17									

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/02/17	J. Miner, F. Davis, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD037JLM	W067	41.763338	-78.32955	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/02/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/02/17	0.02	W070	0.06	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.766956	-78.314731	WD048TMM, PEM wetland		
General Comments: PEM wetland located in floodplain and abutts stream. Wetland occurs in maintained pipeline ROW (0.02 acres in ECL) and continues downslope of Project (0.04 acres delineated) beyond ECL. AA includes entire 0.06 acres of the PEM wetland.						

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					70%					0%						30%					0%							
	Score:		0					0					12					0						4					0							
	Total Sub-score:		0.00					0.00					8.40					0.00						1.20					0.00					9.60		
Comments: Area includes stream, maintained pipeline ROW with access roads/ATV trail. Adjacent forest has maintained understory.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Permanent dirt access road intersecting maintained pipeline ROW.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																Condition Score					Weighting					Sub-Scores														
																a. Roadbed 0-100:					13					* (0.67)					9									
																b. Roadbed 100-300:					13					* (0.33)					4									
																					Total Score:					13														
Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Permanent dirt access road intersecting maintained pipeline ROW.																																								

0.65

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3. Vegetation Condition Index																																		
a. Invasive Species Presence	Condition Category																																	
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Poor: > 50% of the total AA contains invasive species.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No Invasive Species identified in wetland AA.																																		
4. Hydrologic Modification Index																																		
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Poor: Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments:											a. Invasive Sub-Score:					20					Total Score					0.80								
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12					32													
5. Sediment Stressor Index																																		
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Poor: Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:					17					0.85								
6. Water Quality Stressor Index																																		
Sediment Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Poor: Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:					17					0.85								
7. Water Quality Stressor Index																																		
a. Eutrophication Stressor Presence	Condition Category																																	
	Optimal					Suboptimal					Marginal						Poor																	
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
8. Water Quality Stressor Index																																		
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.											a. Eutrophication Score					20					Total Score:					1.00								
											b. Contaminant Score					20					40													
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																Overall Condition Index:					0.77													

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/02/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD048TMM	W070	41.766956	-78.314731	Pipeline access roads				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Permanent dirt access road intersecting maintained pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/02/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/02/17	0.02	W071	0.17	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
T. Malecki, M. Groomer	41.766819	-78.314517	WD048TMM, PEM wetland

General Comments: PEM wetland located in floodplain and abutts stream. Wetland occurs in maintained pipeline ROW (0.02 acres in ECL) and continues downslope of Project (0.15 acres delineated) beyond ECL. AA includes entire 0.17 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20
	Optimal					Suboptimal					Marginal					Poor				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)							
Condition Category:																		Total Score:		
Scoring:	% ZOI Area:	0%				0%				70%				0%						
	Score:	0				0				12				0						
	Total Sub-score:	0.00				0.00				8.40				0.00						
																		9.60		0.48

Comments: Area includes stream, maintained pipeline ROW with access roads/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																						
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor									
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.			<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Permanent dirt access road intersecting maintained pipeline ROW.

	Condition Categories																				CI = Total Score/20																				
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.						High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1																			
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					13					* (0.67)					9															
											b. Roadbed 100-300:					13					* (0.33)					4															
																					Total Score:					13					0.65										

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Permanent dirt access road intersecting maintained pipeline ROW.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal			Poor							
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.				<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.			<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.				Greater than five vegetation stressors present within the AA boundary.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20		Total Score		0.80
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12		32		

Maintained pipeline ROW and maintenance road/ATV trail.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal				Marginal			Poor								
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20								
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor										
	<u>High Optimal:</u> No sediment stressors present within the AA boundary.					<u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.				<u>High Marginal:</u> Four sediment stressors present within the AA boundary.			<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.		
	SCORE					20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3
Comments: One stressor identified due to ROW maintenance and ATV use.															Score:		17		0.85					

Comments: One stressor identified due to ROW maintenance and ATV use.

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40	
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2
Comments: No stressors identified.												a. Eutrophication Score					20		Total Score:		1.00
												b. Contaminant Score					20		40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.77

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

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Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/02/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD048TMM	W071	41.766819	-78.314517	Pipeline access roads				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		
Road Comments: Dirt access road/ATV trail used for pipeline inspection and maintenance. Permanent dirt access road intersecting maintained pipeline ROW.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/02/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

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(Document No. 310-2137-002)

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Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
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arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
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calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
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elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.01	W075	0.29	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.787011	-78.272842	WD061TMM, PEM wetland		

General Comments: PEM wetland located in inactive agricultural field at toe of slope between terraced field and drains into an ephemeral stream. Wetland occurs in recently mowed site (0.01 acres in ECL) and continues upslope of Project (0.28 acres delineated) beyond ECL. AA includes entire 0.29 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																		CI = Total Score/20																	
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																							
Scoring:	Condition Category:																				Total Score:															
	% ZOI Area:		0%			0%			10%			0%			90%			0%																		
	Score:		0			0			12			0			4			0																		
	Total Sub-score:		0.00			0.00			1.20			0.00			3.60			0.00			4.80															
																					0.24															

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																								
	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					

Comments: No roadbeds present within 0-100 feet of AA.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores					0.88															
											a. Roadbed 0-100:					20					* (0.67)						13														
											b. Roadbed 100-300:					13					* (0.33)						4														
																					Total Score:						18														

Comments: Dirt road leading to residential development and one paved road on edge of ZOI.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score		0.93	
AA recently mowed and located in inactive agricultural field.											b. Vegetation Sub-Score:					17	37			

AA recently mowed and located in inactive agricultural field.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal			Marginal			Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00
Comments: No stressors identified.																Score:		20			

Comments: No stressors identified.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00	
Comments: No stressors identified.																Score:		20				

Comments: No stressors identified.

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40							
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor											
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.											
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1					
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:				1.00					
																					20		40				

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.84

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD061TMM	W075	41.787011	-78.272842					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	4		
Road Comments: Dirt road leading to residential development and one paved road on edge of ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		1	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)			X
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		0	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		0	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/05/17	0.03	W076	0.05
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.787781	-78.271437	WD062TMM, PEM wetland	
General Comments: PEM wetland located in floodplain. Adjacent to W077, forest with maintained understory, and in active agricultural field. Wetland occurs in inactive agricultural field and on edge of forest (0.03 acres in ECL) and continues upslope of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.05 acres of the PEM wetland.					

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					30%					0%						70%					0%							
	Score:		0					0					12					0						4					0							
	Total Sub-score:		0.00					0.00					3.60					0.00						2.80					0.00					6.40		
Comments: Area includes stream, other wetlands, and inactive agricultural field. Adjacent forest has maintained understory.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: No roadbeds present within 0-100 feet of AA.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																Condition Score					Weighting					Sub-Scores														
																a. Roadbed 0-100:					20					* (0.67)					13									
																b. Roadbed 100-300:					17					* (0.33)					6									
																										Total Score:					19									
Comments: Dirt road leading to residential development on edge of ZOI.																																								

0.95

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category																CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal		Suboptimal				Marginal				Poor									
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:				13	Total Score		0.75		
AA located in inactive agricultural field.											b. Vegetation Sub-Score:				17	30				

AA located in inactive agricultural field.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal			Marginal			Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00
Comments: No stressors identified.																Score:		20			

Comments: No stressors identified.

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20						
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.			Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.				Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00	
Comments: No stressors identified.																Score:		20				

Comments: No stressors identified.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.84

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD062TMM	W076	41.787781	-78.271437					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	2		
Road Comments: Dirt road leading to residential development on edge of ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		1	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)			X
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		0	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		0	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
romu		10%							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/05/17	0.06	W077	0.45
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.787608	-78.271007	WD062TMM, PSS/PEM wetland	

General Comments: PSS/PEM wetland located in floodplain. Wetland has man-made features influencing it including culvert and artificial bed and bank features. Adjacent to W076, forest with maintained understory, and in active agricultural field. Wetland occurs in inactive agricultural field and on edge of forest (0.03 acres in ECL) and continues upslope of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.05 acres of the PSS/PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20	
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)								
Scoring:	Condition Category:																				
	% ZOI Area:		0%			0%			60%			0%			30%			10%			
	Score:		0			0			12			0			4			1			
	Total Sub-score:		0.00			0.00			7.20			0.00			1.20			0.10			
																	8.50			0.43	

Comments: Area includes stream, other wetlands, and inactive agricultural field. Adjacent forest has maintained understory. Highway, railroad, dirt road, and residential development within 300 feet of AA.

2. Roadbed Presence Index

Condition Categories																				
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor				
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary	<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.	<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.	<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.	<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No roadbeds present within 0-100 feet of AA.																				

Condition Categories																			CI = Total Score/20				
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor							
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary	<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.				<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.	<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.				<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.	<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.	<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1		
Condition Score																				Weighting		Sub-Scores	
a. Roadbed 0-100:											20		* (0.67)		13								
b. Roadbed 100-300:											11		* (0.33)		4								
													Total Score:		17								
																			0.85				

Comments: Highway, railroad, and dirt road leading to residential development on edge of ZOI.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

		Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal					Suboptimal				Marginal			Poor							
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					13	Total Score		0.63	
Portion of AA located in maintained pipeline ROW.											b. Vegetation Sub-Score:					12	25			

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20						
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor												
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70	
Comments: Two stressors identified due to culverts and portion of AA in maintained pipeline ROW.																Score:		14				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.		High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00
Comments: No stressors identified.																Score:	20				

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.77

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD062TMM	W077	41.787608	-78.271007					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.	1	2	2
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	6		
Road Comments: Highway, railroad, and dirt road leading to residential development on edge of ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	2		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:		X		
Total Number:		0		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
romu		10%							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.01	W078	0.08	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.788483	-78.270692	WD064TMM, PEM wetland		

General Comments: PEM wetland located in floodplain of perennial stream. Adjacent to W077 and W080. Wetland occurs on edge of maintained pipeline ROW and forest with maintained understory (0.01 acres in ECL) and continues upslope of Project (0.08 acres delineated) beyond ECL. AA includes entire 0.08 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20					
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor									
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u>		<u>Low Suboptimal:</u>			<u>High Marginal:</u>		<u>Low Marginal:</u>			<u>High Poor:</u>		<u>Low Poor:</u>							
						ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)												
Scoring:	Condition Category:																								
	% ZOI Area:		0%				0%				60%				0%				20%						
	Score:		0				0				12				0				4						
	Total Sub-score:		0.00				0.00				7.20				0.00				0.80						
																						8.20			

Comments: Area includes stream, other wetlands, and inactive agricultural field. Adjacent forest has maintained understory. Highway, railroad, and development within 300 feet of AA.

2. Roadbed Presence Index

Condition Categories																																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																							
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
Comments: No roadbeds present within 0-100 feet of AA.																																							

Condition Categories															CI = Total Score/20																										
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																									
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
															Condition Score					Weighting					Sub-Scores					0.85											
															a. Roadbed 0-100:					20					* (0.67)						13										
															b. Roadbed 100-300:					11					* (0.33)						4										
																									Total Score:						17										

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

Condition Category																														
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor														
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1										

Comments: One Invasive Species identified in wetland AA.

	Condition Category																CI = Total Score/40																			
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal					Poor																				
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.					<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.					<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					8					Total Score					0.63										
AA located near maintained pipeline ROW and forest with maintained understory.											b. Vegetation Sub-Score:					17					25															

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20									
	Optimal					Suboptimal					Marginal						Poor								
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.			
SCORE	20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1					0.85				
Comments: AA located near maintained pipeline ROW and forest with maintained understory.															Score:					17					

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category															CI = Total Score/20								
	Optimal					Suboptimal					Marginal						Poor							
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.						Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	1.00			
Comments: No stressors identified.																Score:		20						

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: No stressors identified.																					
	Condition Category															CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.79

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD064TMM	W078	41.788483	-78.270692					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.	1	2	2
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	6		
Road Comments: Highway, railroad, dirt road, and development within 300 feet of AA.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing			X
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		1	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		0	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar			30%						

Total % relative cover of all invasives, collectively on site: 30 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/05/17	0.01	W080, Pond 07	0.16
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.788357	-78.270172	WD064TMM, PEM wetland and Pond 07	

General Comments: PEM wetland located in floodplain between perennial stream and railroad tracks. Intermittent stream runs through wetland and connects to perennial stream and pond. Beaver activity present creating pond. Pond takes up about 25 percent of the wetland. Wetland adjacent to W078, W079, W081, and W082. Wetland and pond occur on edge of maintained pipeline ROW and forest with maintained understory (0.01 acres in ECL) and continues downslope of Project (0.15 acres delineated) beyond ECL. AA includes 0.16 acres of the PEM wetland and pond.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																		
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Condition Category:																																			
Scoring:	% ZOI Area:	0%					0%					50%					0%					20%					30%					Total Score:			
	Score:	0					0					12					0					4					1								
	Total Sub-score:	0.00					0.00					6.00					0.00					0.80					0.30						7.10		
																					0.36														

Comments: Area includes streams, other wetlands, and maintained pipeline ROW. Adjacent forest has maintained understory. Highway, railroad, and development within 300 feet of AA.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																				
	Optimal				Suboptimal				Marginal				Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary				Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																	
<table border="1"> <thead> <tr> <th colspan="2">Condition Score</th><th>Weighting</th><th>Sub-Scores</th></tr> </thead> <tbody> <tr> <td>a. Roadbed 0-100:</td><td>16</td><td>*(0.67)</td><td>11</td></tr> <tr> <td>b. Roadbed 100-300:</td><td>9</td><td>*(0.33)</td><td>3</td></tr> <tr> <td colspan="2">Total Score:</td><td></td><td>14</td></tr> </tbody> </table>																					Condition Score		Weighting	Sub-Scores	a. Roadbed 0-100:	16	*(0.67)	11	b. Roadbed 100-300:	9	*(0.33)	3	Total Score:			14	0.68
Condition Score		Weighting	Sub-Scores																																		
a. Roadbed 0-100:	16	*(0.67)	11																																		
b. Roadbed 100-300:	9	*(0.33)	3																																		
Total Score:			14																																		

Comments: Highway, railroad, dirt road, gravel road, and development within 300 feet of AA.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																CI = Total Score/20											
	Optimal				Suboptimal				Marginal				Poor															
	High Optimal: No invasives present.				Low Optimal: <5% of the total AA contains invasive species.				High Suboptimal: >5% but less than 10% of the total AA contains invasive species.				Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.				High Marginal: >20% but less than 30% of the total AA contains invasive species.				Low Marginal: >30% but less than 50% of the total AA contains invasive species.				> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1								
Comments: One Invasive Species identified in wetland AA.																												
Condition Category																												

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

b. Vegetation Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40												
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:											a. Invasive Sub-Score:		8	Total Score							
AA located in forest with maintained understory.											b. Vegetation Sub-Score:		17	25						0.63	

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: AA located in forest with maintained understory.											Score:		17						0.85	

5. Sediment Stressor Index

Sediment Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											Score:		20						1.00	

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No eutrophication stressors present within the AA boundary.	One eutrophication stressors present within the AA boundary.	Two eutrophication stressors present within the AA boundary.	Three eutrophication stressors present within the AA boundary.	Greater than five eutrophication stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.																				

b. Contaminant / Toxicity Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40												
	No contaminant / toxicity stressors present within the AA boundary.	One contaminant / toxicity stressors present within the AA boundary.	Two contaminant / toxicity stressors present within the AA boundary.	Three contaminant / toxicity stressors present within the AA boundary.	Greater than five contaminant / toxicity stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score		20	Total Score:							
											b. Contaminant Score		20	40						1.00	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.75

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD064TMM	W080, Pond 07	41.788357	-78.270172	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.	1	1	1
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	7		

Road Comments: Highway, railroad, dirt road, and development within 300 feet of AA.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)			X	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		1		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:			X	
Total Number:		0		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? **YES** NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar			30%						

Total % relative cover of all invasives, collectively on site: 30 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.13	W083	0.16	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.790866	-78.266353	WD066JLM, PEM wetland		

General Comments: Wetland located within the swale adjacent to stream. Seeps contribute to intermittent channel. Site impacted by hoof shearing and cattle grazing, creating micro hummocks/tussocks. PEM wetland in grazed pasture (0.13 acres in ECL). Impacts occur only to the PEM wetland area in the Project area. AA includes entire 0.16 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence Condition Index																																	
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																																
	Optimal					Suboptimal					Marginal					Poor																	
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1													
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																					
2. Estimate the % area within each condition category. Calculators are provided for you below.																																	
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																	
Scoring:	Condition Category:																						Total Score:										
	% ZOI Area:		0%				30%				0%				60%				10%														
	Score:		0				13				0				4				1														
	Total Sub-score:		0.00				3.90				0.00				0.00				2.40					0.10				6.40					
																				0.32													

Comments: Area includes grazed pasture, residential development, paved roads, other wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																							
	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Dirt road to residential development within 100 feet of wetland.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
	SCORE					20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3	2	1															
											Condition Score					Weighting					Sub-Scores					0.80															
											a. Roadbed 0-100:					17					* (0.67)						11														
											b. Roadbed 100-300:					14					* (0.33)						5														
																					Total Score:						16														

Comments: Dirt road to residential development and paved road within 300 feet of wetland.

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																		
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:																																				
Grazed cattle pasture											a. Invasive Sub-Score: 20 Total Score															0.73										
											b. Vegetation Sub-Score: 9 29																									

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Grazed cattle pasture																Score:		17		0.85	

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20										
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.						Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to pasture																Score:		17								

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD066JLM	W083	41.790866	-78.266353	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	4		

Road Comments: Dirt road to residential development within 100 feet and paved road within 300 feet of wetland.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)	X		
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		4	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.01	W082	0.15	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.788754	-78.269234	WD065TMM, PEM wetland		

General Comments: PEM wetland located in meadow at toe of slope, and is connected to a ditch (0.01 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes entire 0.15 acre of PEM wetland. Wetland delineated as 0.15 acres and impacts are 0.000351 acres (impact size rounded up for form).

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20															
	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
	SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1														
	1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.															Total Score = SUM(%Areas*Scores)																			
	2. Estimate the % area within each condition category. Calculators are provided for you below.																																		
	3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																		
	Scoring:	Condition Category:																																	
		% ZOI Area:		0%					15%					5%					10%					30%					40%				Total Score:		
Score:		15					12					9					7					4					1								
Total Sub-score:		0.00					1.80					0.45					0.70					1.20					0.40				4.55				
																					0.23														

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																																																																																																	
		Optimal					Suboptimal					Marginal										Poor																																																																																													
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4.										Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.																																																																									
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																														
Comments: Existing ROW and paved roads present.																																																																																																																			
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)		Condition Categories															CI = Total Score/20																																																																																																		
		Optimal					Suboptimal					Marginal										Poor																																																																																													
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 2 but equal to or less than 4.										Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.																																																																									
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																														
<table><tr><td colspan="12"></td><td colspan="5">Condition Score</td><td colspan="3">Weighting</td><td colspan="2">Sub-Scores</td></tr><tr><td colspan="12"></td><td colspan="5">a. Roadbed 0-100:</td><td colspan="2">9</td><td colspan="3">* (0.67)</td><td colspan="2">6</td></tr><tr><td colspan="12"></td><td colspan="5">b. Roadbed 100-300:</td><td colspan="2">9</td><td colspan="3">* (0.33)</td><td colspan="2">3</td></tr><tr><td colspan="12"></td><td colspan="5"></td><td colspan="2"></td><td colspan="3">Total Score:</td><td colspan="2">9</td></tr></table>																																		Condition Score					Weighting			Sub-Scores														a. Roadbed 0-100:					9		* (0.67)			6														b. Roadbed 100-300:					9		* (0.33)			3																					Total Score:			9	
												Condition Score					Weighting			Sub-Scores																																																																																															
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												b. Roadbed 100-300:					9		* (0.33)			3																																																																																													
																			Total Score:			9																																																																																													
0.45																																																																																																																			

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					High Poor: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No Invasive Species identified in wetland AA.																				
b. Vegetation	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40
SCORE	20 19	18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

Comments: Maintained pipeline ROW, grazed pasture, residential areas that are mowed and maintained.	a. Invasive Sub-Score:	20	Total Score	0.73
	b. Vegetation Sub-Score:	9	29	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.55
Comments: Maintenance on pipeline ROW, culverts and ditches, runoff from road.																Score:		11			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor			CI = Total Score/20								
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.		High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					

	Condition Category																			CI = Total Score/40			
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor							
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.							
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1	
Comments: No stressors identified.						a. Eutrophication Score														20	Total Score:		1.00
						b. Contaminant Score														20	40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.63

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD065TMM	W082	41.788754	-78.269234	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	2	2	4	100-300 ft.	2	2	4
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	8			100-300 ft.	8		

Road Comments: Existing ROW and paved roads present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)	X			
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods	X	3		
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	8		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		3		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.10	W086	0.10	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.792551	-78.264545	WD066JLM, PEM wetland		

General Comments: PEM wetland in grazed pasture and is connected to ephemeral stream (0.10 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes entire 0.10 acre of PEM wetland. Wetland delineated as 0.07 acres and impacts are 0.06 acres (impact size and AA size rounded for form).

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20						
	Optimal					Suboptimal			Marginal			Poor											
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.														Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																						
	% ZOI Area:		5%			15%			5%			15%			30%			30%			Total Score:		
	Score:		15			13			9			7			4			1					
	Total Sub-score:		0.75			1.95			0.45			1.05			1.20			0.30			5.70		
																					0.29		

CI = Total Score/20

0.29

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																									
	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No roadbeds present within 100 feet of the AA boundary					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.						High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments: Existing ROW and paved road present.																										
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20										
	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.						High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
												Condition Score				Weighting				Sub-Scores						
												a. Roadbed 0-100:				11				* (0.67)				7		
												b. Roadbed 100-300:				11				* (0.33)				4		
																				Total Score:				11		0.55

CI = Total Score/20

0.55

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					High Poor: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No Invasive Species identified in wetland AA.																				

b. Vegetation	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40
SCORE	20 19	18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			

Comments:	a. Invasive Sub-Score:		20	Total Score	0.73
Maintained pipeline ROW, grazed pasture, residential areas that are mowed and maintained.	b. Vegetation Sub-Score:		9	29	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
	Optimal		Suboptimal				Marginal				Poor										
Hydrologic Modification Stressor Presence	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintainece on pipeline ROW and runoff from road																Score:		14			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					

	Condition Category																	CI = Total Score/40		
b. Contaminant / Toxicity Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	No contaminant / toxicity stressors present within the AA boundary.				One contaminant / toxicity stressors present within the AA boundary.				Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4		3	2
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.69

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD066JLM	W086	41.792551	-78.264545	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	6			100-300 ft.	6		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)	X			
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		2		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.33	W088	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.79567	-78.264205	WD064JLM, PEM wetland		

General Comments: Mowed hayfield, nearly 100 percent reed canary grass. Depression inundated during wet season. PEM located in agricultural field (0.33 acres in ECL). Wetland continues upslope and downslope of Project (1.47 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the Project area. AA includes 0.33 acres of PEM within and 0.67 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20						
	Optimal					Suboptimal			Marginal			Poor										
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understorey.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understorey.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understorey.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.														Total Score = SUM(%Areas*Scores)								
Scoring:	Condition Category:																			Total Score:		
	% ZOI Area:		0%			30%			10%			40%			20%			0%				
	Score:		0			13			9			7			4			0				
	Total Sub-score:		0.00			3.90			0.90			2.80			0.80			0.00			8.40	
																				0.42		

Comments: Area includes maintained pipeline ROW with access road/ATV trail, other access road, wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																						
	Optimal					Suboptimal					Marginal						Poor																						
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																									
	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
	SCORE					20 19 18 17 16					15 14 13 12 11						10 9 8 7 6					5 4 3 2 1																			
																Condition Score					Weighting					Sub-Scores					0.85										
																a. Roadbed 0-100:					17					* (0.67)						11									
																b. Roadbed 100-300:					17					* (0.33)						6									
																Total Score:										17															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																						
a. Invasive Species Presence	Condition Category															CI = Total Score/40						
	Optimal					Suboptimal					Marginal						Poor					
	High Optimal: No invasives present. Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species. Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species. Low Marginal: >30% but less than 50% of the total AA contains invasive species.						> 50% of the total AA contains invasive species.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: One Invasive Species identified in wetland AA.																						
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40						
	Optimal					Suboptimal					Marginal						Poor					
	High Optimal: No vegetation stressors present within the AA boundary. Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary. Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary. Low Marginal: Five vegetation stressors present within the AA boundary.						Greater than five vegetation stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: Mowed hayfield											a. Invasive Sub-Score:					1		Total Score		0.25		
											b. Vegetation Sub-Score:					9		10				
4. Hydrologic Modification Index																						
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20						
	Optimal					Suboptimal					Marginal						Poor					
	High Optimal: No hydrologic stressors present within the AA boundary. Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary. Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary. Low Marginal: Five hydrologic stressors present within the AA boundary.						Greater than five hydrologic stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17		0.85		
5. Sediment Stressor Index																						
Sediment Stressor Presence	Condition Category															CI = Total Score/20						
	Optimal					Suboptimal					Marginal						Poor					
	High Optimal: No sediment stressors present within the AA boundary. Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary. Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary. Low Marginal: Five sediment stressors present within the AA boundary.						Greater than five sediment stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: Two stressors identified due to hayfield																Score:		14		0.70		
6. Water Quality Stressor Index																						
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40						
	Optimal					Suboptimal					Marginal						Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: No stressors identified.																						
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40						
	Optimal					Suboptimal					Marginal						Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00		
											b. Contaminant Score					20		40				
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																Overall Condition Index:					0.68	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD064JLM	W088	41.79567	-78.264205	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)	X			
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X		1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		4		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar				100					

Total % relative cover of all invasives, collectively on site: 100 %

Comments:

Common Invasives/Aggressives List

<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>	<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.80	W091	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.795333	-78.254476	WD058JLM, PSS wetland		

General Comments: Large PSS wetland in a backwater of the Allegheny River. Forested areas occur outside of the plot. PSS located 0.80 acres in ECL and continues downslope of Project (4.2 acres delineated) beyond ECL. Impacts occur only to the PSS wetland area in the Project area. AA includes 0.80 acres of PSS within and 0.20 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%				40%				10%				10%				20%																	
	Score:		0				13				9				7				4				1													
	Total Sub-score:		0.00				5.20				0.90				0.70				0.80				0.20				7.80									
																						0.39														

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments:

No stressors identified.

a. Invasive Sub-Score:

20

Total Score

1.00

b. Vegetation Sub-Score:

20

40

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

Score:

20

1.00

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

Score:

20

1.00

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

a. Eutrophication Score

20

Total Score:

1.00

b. Contaminant Score

20

40

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.83

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD058JLM	W091	41.795333	-78.254476	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.	1	4	4
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	10		

Road Comments: Dirt roads to residential development within 100 feet and paved roads within 300 feet of wetland.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)			X	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X	
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		0		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)			X	
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		0		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:			X	
Total Number:		0		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	10/05/17	0.38	W091A	0.80	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, C. Maier, M. Groomer		41.795924	-78.255239	WD058JLM, PEM wetland		

General Comments: PEM wetland in a backwater of the Allegheny River. Forested areas occur outside of the plot and connected to PSS wetland. PEM wetland in maintained pipeline ROW (0.38 acres in ECL) and continues upslope of Project (0.42 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the disturbed ROW. AA includes 0.38 acres of PEM within and 0.42 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20														
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																					
Condition Category:																																		
Scoring:	% ZOI Area:	0%				40%				10%				10%				20%				20%				Total Score:								
	Score:	0				13				9				7				4				1												
	Total Sub-score:	0.00				5.20				0.90				0.70				0.80				0.20					7.80							
																										0.39								

Comments: Area includes paved roads, development, wetlands, and streams. Adjacent forest has maintained understory.

2. Roadbed Presence Index

Condition Categories																																					
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																					
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																	
Comments: Dirt roads to residential development within 100 feet of wetland.																																					
Condition Categories																																					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																					
	<u>High Optimal:</u> No Roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																	
										Condition Score					Weighting					Sub-Scores																	
										a. Roadbed 0-100:					14					* (0.67)					9												
										b. Roadbed 100-300:					6					* (0.33)					2												
																				Total Score:					11												
																									0.57												

Comments: Dirt roads to residential development and paved roads within 300 feet of wetland.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					20					Total Score					0.80										
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12					32															

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:						17														

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20															
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor														
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.						High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85										
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17													

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category															CI = Total Score/40							
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor						
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:					1.00
											b. Contaminant Score					20		40					

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.74

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			10/05/17	J. Miner, C. Maier, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD058JLM	W091A	41.795924	-78.255239	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.	1	4	4
2 Lane Paved	0-100 ft.		2	0	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	2	2	4	100-300 ft.	2	2	4
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	10		

Road Comments: Dirt roads to residential development within 100 feet and paved roads within 300 feet of wetland.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/05/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	09/30/17	0.04	W094	0.46	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, F. Davis, M. Groomer		41.795241	-78.250459	WD034JLM, PEM wetland		

General Comments: Wetland is within a hayfield. Soils compacted by plow pan/operations. Wetland is the low end of the hayfield, intercepts drainage ditch. PEM wetland in agricultural field (0.04 acres in ECL) and continues downslope of Project (0.42 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the Project area. AA includes 0.46 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

	Condition Category															CI = Total Score/20													
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal			Marginal			Poor																	
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.									
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																
Scoring:	Condition Category:																												
	% ZOI Area:		0%				0%				5%				80%				10%				Total Score:						
	Score:		0				0				9				7				4								1		
	Total Sub-score:		0.00				0.00				0.45				0.35				3.20				0.10				4.10		
																					0.21								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments: Two Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40																				
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:					3					Total Score					0.38										
Agricultural field											b. Vegetation Sub-Score:					12					15															

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20															
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.						High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70										
Comments: Agricultural field and ditch																Score:		14													

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.			High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.				Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: Two stressors identified due to agricultural field.																Score:	14				0.70

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.57

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			09/30/17	J. Miner, F. Davis, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD034JLM	W094	41.795241	-78.250459	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	3	2	6	100-300 ft.	3	2	6
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	8			100-300 ft.	8		

Road Comments: Paved road and dirt roads within 100-300 feet of wetland.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		09/30/17		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods	X	1		
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		2		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? **YES** NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar				70					
hola	1								

Total % relative cover of all invasives, collectively on site: 71 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	09/30/17	0.01	W096	0.03	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.811266	-78.205338	WD041TMM, PEM wetland		

General Comments: Intermittent stream drains into wetland. Wetland adjacent to perennial stream. PEM wetland located in existing pipeline ROW at valley bottom (0.004 acres in ECL) and continues upslope of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.03 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20	
	Optimal					Suboptimal					Marginal					Poor					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																			Total Score:	
	% ZOI Area:		0%		0%		30%		0%		60%			10%							
	Score:		0		0		12		0		4			1							
	Total Sub-score:		0.00		0.00		3.60		0.00		2.40			0.10			6.10				
																					0.31

Comments: Area includes streams, maintained pipeline ROW, and clearcut forested area. Remainder of adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																			
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20													
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor															
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			<u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.		<u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
	SCORE					20 19 18 17 16					15 14 13 12 11						10 9 8 7 6			5 4 3 2 1									
															Condition Score			Weighting		Sub-Scores									
															a. Roadbed 0-100:			17		* (0.67)		11							
															b. Roadbed 100-300:			17		* (0.33)		6							
																				Total Score:		17		0.85					

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40					
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:						a. Invasive Sub-Score:					7	Total Score					0.60				
Maintained pipeline ROW and maintenance road/ATV trail.						b. Vegetation Sub-Score:					17	24									

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:		17			

5. Sediment Stressor Index

	Condition Category																	CI = Total Score/20		
Sediment Stressor Presence	Optimal					Suboptimal				Marginal				Poor						
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.				High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: One stressor identified due to ROW maintenance and ATV use.																	Score: 17		0.85	

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.74

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			09/30/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD041TMM	W096	41.811266	-78.205338	Pipeline access roads				
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting. Dirt access road/atv trail used for pipeline inspection and maintenance.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		09/30/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)	X		
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		4	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X		
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar			40%						

Total % relative cover of all invasives, collectively on site: 40 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	10/09/17	0.10	W101	0.69
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.819422	-78.193012	WD044TMM, PEM wetland	
General Comments: PEM wetland located in active cow pasture in valley bottom and floodplain. Abutts intermittent stream, and is adjacent to W099 and W100. Wetland has 0.10 acres in ECL and continues downslope of Project (0.59 acres delineated) beyond ECL. AA includes entire 0.69 acres of the PEM wetland.					

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)																				
Scoring:	Condition Category:																											Total Score:								
	% ZOI Area:		0%					0%					0%					0%					100%						0%							
	Score:		0					0					0					0					4						0							
	Total Sub-score:		0.00					0.00					0.00					0.00					4.00						0.00					4.00		
Comments: Area includes streams, other wetlands, and active cow pasture lands.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: No roadbeds present in ZOI.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																Condition Score					Weighting					Sub-Scores					1.00									
																a. Roadbed 0-100:					20					* (0.67)						13								
																b. Roadbed 100-300:					20					* (0.33)						7								
																										Total Score:						20								
Comments: No roadbeds present in ZOI.																																								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																																					
a. Invasive Species Presence	Condition Category															CI = Total Score/40																																					
	Optimal					Suboptimal					Marginal						Poor																																				
	High Optimal: No invasives present.	Low Optimal: <5% of the total AA contains invasive species.				High Suboptimal: >5% but less than 10% of the total AA contains invasive species.	Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.				High Marginal: >20% but less than 30% of the total AA contains invasive species.	Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.																																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																	
Comments: No Invasive Species identified in wetland AA.																																																					
4. Hydrologic Modification Index																																																					
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40																																					
	Optimal					Suboptimal					Marginal						Poor																																				
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.				High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.				High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.																																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																	
Comments: Maintaine on agricultural land and active cow pasture.																																																					
<table border="1"> <tr> <td colspan="15">a. Invasive Sub-Score:</td> <td>20</td> <td colspan="2">Total Score</td> <td rowspan="2">0.85</td> </tr> <tr> <td colspan="15">b. Vegetation Sub-Score:</td> <td>14</td> <td colspan="2">34</td> </tr> </table>																	a. Invasive Sub-Score:															20	Total Score		0.85	b. Vegetation Sub-Score:															14	34	
a. Invasive Sub-Score:															20	Total Score		0.85																																			
b. Vegetation Sub-Score:															14	34																																					
5. Sediment Stressor Index																																																					
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																																					
	Optimal					Suboptimal					Marginal						Poor																																				
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.				High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.				High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.																																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																	
Comments: Maintaine on agricultural land and active cow pasture.																																																					
<table border="1"> <tr> <td colspan="15">Score:</td> <td colspan="2">17</td> <td rowspan="2">0.85</td> </tr> </table>																	Score:															17		0.85																			
Score:															17		0.85																																				
6. Water Quality Stressor Index																																																					
Sediment Stressor Presence	Condition Category															CI = Total Score/20																																					
	Optimal					Suboptimal					Marginal						Poor																																				
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.				High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.				High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.																																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																	
Comments: One stressor identified due to maintaine on agricultural land and active cow pasture.																																																					
<table border="1"> <tr> <td colspan="15">Score:</td> <td colspan="2">17</td> <td rowspan="2">0.85</td> </tr> </table>																	Score:															17		0.85																			
Score:															17		0.85																																				
7. Water Quality Stressor Index																																																					
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40																																					
	Optimal					Suboptimal					Marginal						Poor																																				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																	
Comments: No stressors identified.																																																					
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40																																					
	Optimal					Suboptimal					Marginal						Poor																																				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.																																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																	
Comments: No stressors identified.																																																					
<table border="1"> <tr> <td colspan="15">a. Eutrophication Score</td> <td>20</td> <td colspan="2">Total Score:</td> <td rowspan="2">1.00</td> </tr> <tr> <td colspan="15">b. Contaminant Score</td> <td>20</td> <td colspan="2">40</td> </tr> </table>																	a. Eutrophication Score															20	Total Score:		1.00	b. Contaminant Score															20	40	
a. Eutrophication Score															20	Total Score:		1.00																																			
b. Contaminant Score															20	40																																					
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																																																					
Overall Condition Index: 0.79																																																					

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			10/09/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD044TMM	W101	41.819422	-78.193012					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		
Road Comments: No roadbeds present in ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		10/09/17 Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)	X			
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)				X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)				X
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)				X
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:	X			
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	09/29/17	0.04	W112	0.08	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.883906	-77.955779	WD032TMM, PEM wetland		

General Comments: PEM wetland located on hillside in depression within existing ROW. Wetland is adjacent but not connected to W113 and W114. Wetland occurs in maintained pipeline ROW (0.04 acres in ECL) and continues downslope of Project (0.04 acres delineated) beyond ECL. AA includes entire 0.08 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20	
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u>		<u>Low Suboptimal:</u>			<u>High Marginal:</u>		<u>Low Marginal:</u>			<u>High Poor:</u>		<u>Low Poor:</u>			
						ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)								
Scoring:	Condition Category:																				
	% ZOI Area:		0%			0%			80%			0%			20%			0%			Total Score:
	Score:		0			0			12			0			4			0			
	Total Sub-score:		0.00			0.00			9.60			0.00			0.80			0.00			
																				0.52	

Comments: Area includes stream, other wetlands, maintained pipeline ROW, and forest with maintained understory.

2. Roadbed Presence Index

	Condition Categories																																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	2	1			

[illegible]

	Condition Categories															CI = Total Score/20															
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																	
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 to 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
																Condition Score					Weighting			Sub-Scores							
																a. Roadbed 0-100:					17			* (0.67)			11				
																b. Roadbed 100-300:					17			* (0.33)			6				
																								Total Score:			17				
																											0.85				

Comments: Maintained pipeline ROW.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40						
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor					
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments:											a. Invasive Sub-Score:					20	Total Score					0.80
Maintained pipeline ROW.											b. Vegetation Sub-Score:					12	32					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	SCORE					20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3	2	1										
Comments: Maintainece on pipeline ROW															Score:					17					0.85											

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20								
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor										
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.			Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85			
Comments: One stressor identified due to maintenance on pipeline ROW																Score:		17						

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					
	Condition Category															CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			09/29/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD032TMM	W112	41.883906	-77.955779					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Maintained pipeline ROW								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		09/29/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
alg12	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	09/29/17	0.05	W114	0.14
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.884082	-77.95518	WD032TMM, PEM wetland	

General Comments: PEM wetland located on hillside in depression within existing ROW. Wetland is adjacent but not connected to W112 and W113. Wetland occurs in maintained pipeline ROW (0.05 acres in ECL) and continues downslope of Project (0.09 acres delineated) beyond ECL. AA includes entire 0.14 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category															CI = Total Score/20																				
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)																								
Scoring:	Condition Category:																																			
	% ZOI Area:		0%			0%			80%			0%			20%			0%			Total Score:															
	Score:		0			0			12			0			4			0																		
	Total Sub-score:		0.00			0.00			9.60			0.00			0.80			0.00			10.40															
																						0.52														

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

		Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.						High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal			Suboptimal			Marginal			Poor										
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:			20	Total Score		0.80			
Maintained pipeline ROW.											b. Vegetation Sub-Score:			12	32					

Comments:
Maintained pipeline ROW.

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20			
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor					
	<u>High Optimal:</u> No hydrologic stressors present within the AA boundary.		<u>Low Optimal:</u> One hydrologic stressor present within the AA boundary.			<u>High Suboptimal:</u> Two hydrologic stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three hydrologic stressors present within the AA boundary.			<u>High Marginal:</u> Four hydrologic stressors present within the AA boundary.		<u>Low Marginal:</u> Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.					
	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3
SCORE																0.85			
Comments: Maintainece on pipeline ROW																			
Score:																17			

Comments: Maintaince on pipeline ROW

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor							
	<u>High Optimal:</u> No sediment stressors present within the AA boundary.					<u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.		<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.		<u>High Marginal:</u> Four sediment stressors present within the AA boundary.		<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.		
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: One stressor identified due to maintenance on pipeline ROW																	Score:		17		0.85

Comments: One stressor identified due to maintaince on pipeline ROW

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor									
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.									
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1			
Comments: No stressors identified.											a. Eutrophication Score										20		Total Score:		1.00
											b. Contaminant Score										20		40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.81

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			09/29/17	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD032TMM	W114	41.884082	-77.95518					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Maintained pipeline ROW								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		09/29/17	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/01/18	0.11	W124A, W124B	0.11

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
J. Miner, M. Groomer	41.845306	-78.064734	WD202JLM, PEM wetland

General Comments: Small PEM wetlands in valley bottom/floodplain. Spring flow enters wetland. Perennial stream separates W124A and W124B. Wetlands tie to stream. PEM wetland in and adjacent to maintained ROW (0.11 acres in ECL). Impacts occur only to the PEM wetland area in the Project area. AA includes entire 0.11 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Condition Category																				CI = Total Score/20																
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)																				
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%				5%				5%				10%				75%								5%									
	Score:		0				13				9				7				4				1													
	Total Sub-score:		0.00				0.65				0.45				0.70				3.00				0.05				4.85									
																				0.24																

Comments: Area includes paved road, residential area, other wetlands, a stream, and maintained ROW.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: Paved road and maintained ROW

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					14					* (0.67)					9															
											b. Roadbed 100-300:					14					* (0.33)					5															
																					Total Score:					14					0.70										

Comments: Paved road and maintained ROW

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

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3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40															
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor														
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.						High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
Comments: Maintained pipeline ROW and maintenance road/ATV trail.											a. Invasive Sub-Score:					20					Total Score					0.80					
											b. Vegetation Sub-Score:					12					32										

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments: Within ROW alteration caused by pipeline maintenance and ATV use.																Score:					17					0.85										

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal					Suboptimal			Marginal			Poor									
	High Optimal: No sediment stressors present within the AA boundary.		Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40						
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3		2	1				
Comments: No stressors identified.																				a. Eutrophication Score		20		Total Score:		1.00
																				b. Contaminant Score		20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.74

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/01/18	J. Miner, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD202JLM	W124A, W124B	41.845306	-78.064734					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		
Road Comments: Paved road and maintained ROW								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/01/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

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Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
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eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/01/18	0.12	W125	0.44	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, M. Groomer		41.845733	-78.067454	WD202JLM, PEM wetland		

General Comments: Small PEM wetland in valley bottom/floodplain. Spring flow enters wetland. Drainage ditch from upstream residential area also enters site. Wetland ties to stream which is lateral extent of wetland. PEM wetland in maintained ROW and residential area (0.12 acres in ECL). Wetland continues upslope and downslope of Project (0.32 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the Project area. AA includes entire 0.44 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
	SCORE					20 19 18 17 16					15 14 13 12 11						10 9 8 7 6					5 4 3 2 1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.										Total Score = SUM(%Areas*Scores)																										
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																	Total Score:																		
	% ZOI Area:		0%			10%			5%			75%			5%																					
	Score:		0			13			9			7			4			1																		
	Total Sub-score:		0.00			1.30			0.45			0.35			3.00			0.05			5.15															
																	0.26																			

Comments: Area includes paved road, residential area, another wetland, a ditch, and maintained ROW.

2. Roadbed Presence Index

		Condition Categories																																							
		Optimal					Suboptimal					Marginal						Poor																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: Paved road and maintained ROW

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20													
	Optimal					Suboptimal					Marginal						Poor												
	<u>High Optimal:</u> No roadbeds present within 100 - 300 feet of the AA boundary <u>Low Optimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4. <u>Low Suboptimal:</u> Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8. <u>Low Marginal:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.						<u>High Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12. <u>Low Poor:</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.												
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1									
										Condition Score					Weighting					Sub-Scores									
										a. Roadbed 0-100:					14					* (0.67)					9				
										b. Roadbed 100-300:					14					* (0.33)					5				
															Total Score:					14									
																									0.70				

Comments: Paved road and maintained ROW

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: No Invasive Species identified in wetland AA.

	Condition Category																CI = Total Score/40																			
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments:											a. Invasive Sub-Score:											20	Total Score		0.80											
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:											12	32													

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20										
	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.						Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Drainage ditch from residential area connected to wetland.																Score:		14		0.70						

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category															CI = Total Score/20										
	Optimal					Suboptimal					Marginal						Poor									
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.						Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85					
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17								

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.72

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/01/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD202JLM	W125	41.845733	-78.067454	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Paved road and maintained ROW

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/01/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods	X	1	
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/02/18	0.03	W126C	0.07	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, M. Groomer		41.767178	-78.315141	WD204JLM, PEM wetland		

General Comments: PEM seep/old seasonal channel. Seep occurs at base of terrace slope/floodplain break. Distinct topographic break. PEM adjacent to maintained pipeline ROW (0.03 acres in ECL). Wetland continues upslope of Project (0.04 acres delineated) beyond ECL. Impacts occur only to the PEM wetland area in the Project area. AA includes 0.07 acres of PEM within and beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category														CI = Total Score/20													
	Optimal					Suboptimal			Marginal				Poor															
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.				High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1							
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.														Total Score = SUM(%Areas*Scores)														
2. Estimate the % area within each condition category. Calculators are provided for you below.																												
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																												
Scoring:	Condition Category:																					Total Score:						
	% ZOI Area:		0%			60%			10%			10%				20%			0%									
	Score:		0			13			9			7				4			0									
	Total Sub-score:		0.00			7.80			0.90			0.70				0.80			0.00			10.20						
																						0.51						

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.				
	Low Optimal: <5% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No Invasive Species identified in wetland AA.

b. Vegetation Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.				
	Low Optimal: One vegetation stressor present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments:

Maintained pipeline ROW and maintenance road/ATV trail.

a. Invasive Sub-Score:	20	Total Score	0.80
b. Vegetation Sub-Score:	12	32	

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.				
	Low Optimal: One hydrologic stressor present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: Within ROW alteration caused by pipeline maintenance and ATV use.

Score:	17	0.85

5. Sediment Stressor Index

Sediment Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	High Optimal: No sediment stressors present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.				
	Low Optimal: One sediment stressor present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: One stressor identified due to ROW maintenance and ATV use.

Score:	17	0.85

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Condition Category														
	Optimal					Suboptimal					Marginal				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6

Comments: No stressors identified.

a. Eutrophication Score	20	Total Score:	1.00
b. Contaminant Score	20	40	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.79

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/02/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD204JLM	W126C	41.767178	-78.315141	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	3	2	6
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	6		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/02/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		3	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/03/18	0.14	W127	1.00	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
J. Miner, M. Groomer	41.760453	-78.337957	WD207JLM, PFO and PEM wetland

General Comments: Wetland/upland mosaic that includes approximately 20-30 percent uplands. Wetland depressions with upland hummocks. PFO wetland in maintained pipeline ROW (0.14 acres in ECL). Wetland continues beyond existing ROW, upslope of Project (0.22 acres delineated) beyond ECL. Connected to PEM wetland within Project area and continues downslope of the Project (0.33 acres delineated) beyond ECL. PEM wetland is connected to another PFO wetland which has no impacts and does not occur within the Project area. Impacts occur only to the PFO and PEM wetland area in the disturbed ROW. AA includes 0.59 acres of PFO and PEM within the Project area and 0.41 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index																					
Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category											CI = Total Score/20									
	Optimal		Suboptimal			Marginal			Poor												
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understorey.			Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understorey.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.			Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understorey.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)									
Scoring:	Condition Category:																				
	% ZOI Area:		0%		60%		10%		10%		20%		0%								
	Score:		0		13		9		7		4		0								
	Total Sub-score:		0.00		7.80		0.90		0.70		0.80		0.00		10.20						
Comments: Area includes maintained pipeline ROW with access road/ATV trail and other wetlands. Adjacent forest has maintained understorey.																					

2. Roadbed Presence Index																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories											CI = Total Score/20											
	Optimal		Suboptimal			Marginal			Poor														
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.			Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Condition Categories																							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal		Suboptimal			Marginal			Poor			CI = Total Score/20											
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary		Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.			Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1			
												Condition Score		Weighting		Sub-Scores							
												a. Roadbed 0-100:		17		* (0.67)		11					
												b. Roadbed 100-300:		17		* (0.33)		6					
														Total Score:		17							

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/03/18	J. Miner, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD207JLM	W127	41.760453	-78.337957	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/03/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		1		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
mivi		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/07/18	0.10	W134A	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblin, M. Groomer		41.259983	-78.351378	RW227JLM, PEM wetland		

General Comments: Large PEM wetland in maintained ROW (0.10 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 1.00 acre of PEM wetland, wetland delineated as 6.62 acres.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																			
	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																Total Score = SUM(%Areas*Scores)																				
Scoring:	Condition Category:																				Total Score:															
	% ZOI Area:		5%			20%			5%			20%			40%			10%																		
	Score:		15			13			9			7			4			1																		
	Total Sub-score:		0.75			2.60			0.45			1.40			1.60			0.10			6.90															
																					0.35															

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.					CI = Total Score/40
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments:	a. Invasive Sub-Score:		20	Total Score	0.85
Maintained pipeline ROW.	b. Vegetation Sub-Score:		14	34	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20																				
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70															
Comments: Maintainece on pipeline ROW and runoff from road																Score:						14														

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal		Suboptimal					Marginal			Poor										
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.						a. Eutrophication Score										20		Total Score:		1.00
						b. Contaminant Score										20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW227JLM	W134A	41.259983	-78.351378	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/07/18	0.16	W135	1.20	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblin, M. Groomer		41.253369	-78.362233	WD228JLM, PEM wetland		

General Comments: Wetland begins in ROW at culvert under highway. Extends in ROW as a narrow channel with wetland fringe to valley bottom. Valley bottom outside of ROW is wetland. Wetland extends in ROW to a water box which diverts flow off ROW. PEM wetland in and adjacent to maintained ROW (0.16 acres in ECL). Impacts occur only to the PEM wetland area in the Project area. AA includes 0.16 acres of PEM within and 1.04 acres beyond the Project area.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20																
	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																							
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%				80%				0%				20%				0%																	
	Score:		0				13				0				4				0																	
	Total Sub-score:		0.00				10.40				0.00				0.00				0.80				0.00				11.20									
																				0.56																

Comments: Area includes maintained pipeline ROW with access road/ATV trail. Adjacent forest has maintained understory.

2. Roadbed Presence Index

	Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE					20	19	18	17	16	15	14	13	12	11		10	9	8	7	6	5	4	3	2	1															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
											Condition Score					Weighting					Sub-Scores																				
											a. Roadbed 0-100:					17					* (0.67)					11															
											b. Roadbed 100-300:					17					* (0.33)					6															
																					Total Score:					17															

Comments: Pipeline ROW maintenance road, two-track, vegetated, with rutting.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40															
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor														
	High Optimal: No vegetation stressors present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.						High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
Comments:											a. Invasive Sub-Score:					14					Total Score					0.65					
Maintained pipeline ROW and maintenance road/ATV trail.											b. Vegetation Sub-Score:					12					26										

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20															
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.						High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.60										
Comments: Within ROW alteration caused by pipeline maintenance and ATV use. Drainage ditch and culvert connected to wetland.																Score:		12													

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance and ATV use.																Score:		17																		

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.75

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD228JLM	W135	41.253369	-78.362233	Pipeline access road/ATV trail

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments: Unimproved access road/ATV trail used for pipeline inspection and maintenance. Not an improved road, no gravel, no grading.

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods	X	1		
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		3		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
mivi		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments:

Common Invasives/Aggressives List

<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>	<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/07/18	0.01	W137	0.01	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblyn, M. Groomer		41.241145	-78.418386	RW232JLM, PEM wetland		

General Comments: PEM wetland connected to intermittent and perennial stream. Wetland in and adjacent to maintained ROW (0.003 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 0.007 acres of PEM wetland (impact and AA size rounded to 0.01 for form).

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-kill cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																																		
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																		
Scoring:	Condition Category:																		Total Score:															
	% ZOI Area:		5%				5%				30%				40%																			
	Score:		15				13				9				7																			
	Total Sub-score:		0.75				0.65				0.90				2.10																			
		0.75				0.65				0.90				2.10				1.60				0.10		6.10										
																					0.31													

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																					
		Optimal					Suboptimal					Marginal						Poor																					
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																		
Comments: Existing ROW and paved road present.																																							

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)		Condition Categories															CI = Total Score/20																						
		Optimal					Suboptimal					Marginal						Poor																					
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																		
												Condition Score											Weighting	Sub-Scores	0.65														
												a. Roadbed 0-100:											13	* (0.67)		9													
												b. Roadbed 100-300:											13	* (0.33)		4													
																							Total Score:	13															

3. Vegetation Condition Index

	Condition Category																																	
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No Invasive Species identified in wetland AA.																																		
	Condition Category																																	
b. Vegetation	Optimal					Suboptimal					Marginal						Poor																	

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.					CI = Total Score/40
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																

Comments:	a. Invasive Sub-Score:		20	Total Score	0.85
Maintained pipeline ROW.	b. Vegetation Sub-Score:		14	34	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.				Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintainece on pipeline ROW and runoff from road																Score:		14			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal					Marginal					Poor							
	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.			High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.			Low Marginal: Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																									
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.										
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																										

	Condition Category																					
	Optimal					Suboptimal					Marginal					Poor						
b. Contaminant / Toxicity Stressor Presence	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					CI = Total Score/40	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments: No stressors identified.											a. Eutrophication Score					20	Total Score:					1.00
											b. Contaminant Score					20	40					

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW232JLM	W137	41.241145	-78.418386	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/08/18	0.02	W138	0.07	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblyn, M. Groomer		41.240996	-78.417151	WD233JLM, PEM wetland		

General Comments: PEM wetland adjacent to perennial stream. Wetland in and adjacent to maintained ROW (0.02 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 0.07 acres of PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																		CI = Total Score/20															
	Optimal					Suboptimal					Marginal					Poor																		
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																			Total Score = SUM(%Areas*Scores)															
2. Estimate the % area within each condition category. Calculators are provided for you below.																																		
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																		
Scoring:	Condition Category:																																	
	% ZOI Area:		5%			35%			30%			10%			10%			10%			Total Score:													
	Score:		15			13			9			7			4			1																
	Total Sub-score:		0.75			4.55			2.70			0.70			0.40			0.10			9.20													
0.46																																		

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																					
		Optimal					Suboptimal					Marginal						Poor																					
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																		
Comments: Existing ROW and paved road present.																																							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)		Condition Categories															CI = Total Score/20																						
		Optimal					Suboptimal					Marginal						Poor																					
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																		
																	Condition Score		Weighting		Sub-Scores		0.65																
																	a. Roadbed 0-100:		13		* (0.67)						9												
																	b. Roadbed 100-300:		13		* (0.33)						4												
																					Total Score:						13												

3. Vegetation Condition Index

	Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments: No Invasive Species identified in wetland AA.																																				
	Condition Category																																			
b. Vegetation	Optimal					Suboptimal					Marginal						Poor																			

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	CI = Total Score/40												
	SCORE	20	19	18	17	16	15		14	13	12	11	10	9	8	7	6	5	4	3

Comments: Maintained pipeline ROW.	a. Invasive Sub-Score:		20	Total Score	0.85
	b. Vegetation Sub-Score:		14	34	

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal		Suboptimal		Marginal		Poor														
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintainece on pipeline ROW and runoff from road																Score:		14			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
Sediment Stressor Presence	Optimal			Suboptimal			Marginal			Poor											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.		High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.											
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: One stressor identified due to ROW maintenance.																Score:		17			

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: No stressors identified.																					

	Condition Category																			CI = Total Score/40				
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor								
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.								
	SCORE					20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3
Comments: No stressors identified.											a. Eutrophication Score								20	Total Score:				1.00
											b. Contaminant Score								20	40				

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.75

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/08/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD233JLM	W138	41.240996	-78.417151	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/08/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/08/18	0.02	W139	0.06	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblyn, M. Groomer		41.232687	-78.474216	WD235JLM, PEM wetland		

General Comments: PEM wetland located in between perennial stream and road. Wetland connects to stream in maintained ROW only. Wetland in and adjacent to maintained ROW (0.02 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 0.06 acres of PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.						High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
	SCORE					20 19 18 17 16					15 14 13 12 11						10 9 8 7 6					5 4 3 2 1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																Total Score = SUM(%Areas*Scores)																				
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Condition Category:																																				
Scoring:	% ZOI Area:		5%			10%			5%			30%			40%			10%			Total Score:															
	Score:		15			13			9			7			4			1																		
	Total Sub-score:		0.75			1.30			0.45			2.10			1.60			0.10						6.30												
																0.32																				

CI = Total Score/20

0.32

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
Comments: Existing ROW and paved road present.																																								

Condition Categories																																								
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100-300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
												Condition Score				Weighting		Sub-Scores																						
												a. Roadbed 0-100:				13		* (0.67)		9																				
												b. Roadbed 100-300:				13		* (0.33)		4																				
																		Total Score:		13																				
Comments: Existing ROW and paved road present.																																								

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		
												b. Roadbed 100-300:				13		* (0.33)		4		
																		Total Score:		13		
Comments: Existing ROW and paved road present.																						

												Condition Score				Weighting		Sub-Scores				
												a. Roadbed 0-100:				13		* (0.67)		9		

CI = Total Score/20

0.65

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No invasives present.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					High Poor: >30% but less than 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No Invasive Species identified in wetland AA.																				

b. Vegetation	Condition Category																			
	Optimal					Suboptimal					Marginal					Poor				

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.	C_I = Total Score/40													
SCORE	20	19	18	17	16	15	14		13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:												a. Invasive Sub-Score:		20	Total Score		0.85				
Maintained pipeline ROW.												b. Vegetation Sub-Score:		14	34						

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal			Suboptimal			Marginal			Poor			CI = Total Score/20								
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.														
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.70
Comments: Maintenance on pipeline ROW and runoff from road															Score:		14				

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																				
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85															
Comments: One stressor identified due to ROW maintenance.																Score:		17																		

6. Water Quality Stressor Index

		Condition Category																		
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
		No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.																								
Condition Category																								
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					CI = Total Score/40			
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.								
	SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6						5 4 3 2 1		
Comments: No stressors identified.										a. Eutrophication Score										20		Total Score:		1.00
										b. Contaminant Score										20		40		

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/08/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD235JLM	W139	41.232687	-78.474216	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/08/18	
		Occurrence in AA	
		Y	#'s
Vegetation Alteration			
Mowing			X
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		2	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.			

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

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Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/08/18	0.02	W139A	0.03	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
J. Miner, B. Shamblyn, M. Groomer		41.232885	-78.475562	RW235JLM, PEM wetland		

General Comments: PEM wetland connected to intermittent stream. Wetland in and adjacent to maintained ROW (0.02 acres in ECL). Impacts occur only to the wetland area in the Project area. AA includes 0.03 acres of PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																			CI = Total Score/20																												
	Optimal					Suboptimal					Marginal					Poor																																
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries, no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.																		
	SCORE					20 19 18 17 16					15 14 13 12 11					10 9 8 7 6					5 4 3 2 1																											
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																			Total Score = SUM(%Areas*Scores)																													
Condition Category:																																																
Scoring:	% ZOI Area:					5%					10%					30%					40%					10%					Total Score:																	
	Score:					15					13					9					7					4					1																	
	Total Sub-score:					0.75					1.30					0.45					2.10					1.60					0.10					6.30												
																																												0.32				

Comments: Area includes streams, another wetland, existing pipeline ROW, forest with maintained understory, paved road, and cleared land.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)		Condition Categories																																					
		Optimal					Suboptimal					Marginal						Poor																					
		High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																		
Comments: Existing ROW and paved road present.																																							
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)		Condition Categories															CI = Total Score/20																						
		Optimal					Suboptimal					Marginal						Poor																					
		High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	
SCORE		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																		
		Condition Score										Weighting					Sub-Scores					0.65																	
		a. Roadbed 0-100:										13					* (0.67)						9																
		b. Roadbed 100-300:										13					* (0.33)						4																
																	Total Score:						13																

Comments: Existing ROW and paved road present.

3. Vegetation Condition Index

	Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments: No Invasive Species identified in wetland AA.																																				
	Condition Category																																			
b. Vegetation	Optimal					Suboptimal					Marginal						Poor																			

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Stressor Presence	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.					CI = Total Score/40
	SCORE					20	19	18	17	16	15					14	13	12	11	10					9	8	7	6	5					4	3	

Comments:	a. Invasive Sub-Score:		20	Total Score	0.85
Maintained pipeline ROW.	b. Vegetation Sub-Score:		14	34	

4. Hydrologic Modification Index

	Condition Category																			CI = Total Score/20																
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal					Poor																				
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.					
	SCORE					20	19	18	17	16	15					14	13	12	11		10					9	8	7	6	5					4	3
Comments: Maintainece on pipeline ROW and runoff from road																			Score:				14				0.70									

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20					
	Optimal			Suboptimal				Marginal				Poor									
Sediment Stressor Presence	High Optimal: No sediment stressors present within the AA boundary.			Low Optimal: One sediment stressor present within the AA boundary.		High Suboptimal: Two sediment stressors present within the AA boundary.		Low Suboptimal: Three sediment stressors present within the AA boundary.		High Marginal: Four sediment stressors present within the AA boundary.		Low Marginal: Five sediment stressors present within the AA boundary.		Greater than five sediment stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1
Comments: One stressor identified due to ROW maintenance.																Score:	17				0.85

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40	
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:			1.00
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.	Overall Condition Index:	0.73

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/08/18	J. Miner, B. Shamblin, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
WD235JLM	W139A	41.232885	-78.475562	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/08/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/01/2018	0.39	W141, W141A	1.00
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.835692	-78.124825	WD206TMM, PSS and PEM wetland	

General Comments: PSS wetland parallels intermittent stream on both sides and is connected to PEM wetland (W141A). PSS Wetland has 0.10 acres in ECL and continues downslope of Project (0.72 acres delineated) beyond ECL. PEM wetland occurs in mowed agricultural field (0.29 acres in ECL) and continues downslope of Project (0.18 acres delineated) beyond ECL where it connects to W141. AA includes entire 0.47 acres of the PEM wetland and 0.53 acres of the PSS wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.											Total Score = SUM(%Areas*Scores)																									
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																											Total Score:								
	% ZOI Area:		0%					0%					50%					0%					45%						5%							
	Score:		0					0					12					0					4						1							
	Total Sub-score:		0.00					0.00					6.00					0.00					1.80						0.05					7.85		
Comments: Area includes streams, agricultural fields, forest with maintained understory, and residential development.																																				

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: No roadbeds present in ZOI.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
											Condition Score					Weighting					Sub-Scores																			
											a. Roadbed 0-100:					20					* (0.67)					13														
											b. Roadbed 100-300:					20					* (0.33)					7														
																					Total Score:					20														
Comments: No roadbeds present in ZOI.																																								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																				
		Condition Category																																		
		Optimal					Suboptimal					Marginal								Poor																
a. Invasive Species Presence		High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					Poor: > 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: No Invasive Species identified in wetland AA.																																				
		Condition Category															CI = Total Score/40																			
		Optimal					Suboptimal					Marginal								Poor																
b. Vegetation Stressor Presence		High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.					Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Poor: Greater than five vegetation stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments:										a. Invasive Sub-Score:										20		Total Score		0.85												
Maintainance on agricultural land.										b. Vegetation Sub-Score:										14		34														
4. Hydrologic Modification Index																																				
		Condition Category															CI = Total Score/20																			
		Optimal					Suboptimal					Marginal								Poor																
Hydrologic Modification Stressor Presence		High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.					Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Poor: Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: Maintaince on agricultural land and presence of added spring boxes and PVC pipes placed along intermittent stream.										Score:										14		0.70														
5. Sediment Stressor Index																																				
		Condition Category															CI = Total Score/20																			
		Optimal					Suboptimal					Marginal								Poor																
Sediment Stressor Presence		High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.					Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Poor: Greater than five sediment stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: One stressor identified due to maintaince on agricultural land and active cow pasture.										Score:										17		0.85														
6. Water Quality Stressor Index																																				
		Condition Category															CI = Total Score/40																			
		Optimal					Suboptimal					Marginal								Poor																
a. Eutrophication Stressor Presence		No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.																			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: No stressors identified.																																				
		Condition Category															CI = Total Score/40																			
		Optimal					Suboptimal					Marginal								Poor																
b. Contaminant / Toxicity Stressor Presence		No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.																			
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															
Comments: No stressors identified.										a. Eutrophication Score										20		Total Score:		1.00												
										b. Contaminant Score										20		40														
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.															Overall Condition Index:					0.80																

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/01/2018	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD206TMM	W141, W141A	41.835692	-78.124825					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		
Road Comments: No roadbeds present in ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/01/2018	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)	X		
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		2	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)	X	2	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		2	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)	X		
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/02/2018	0.31	W142	0.96
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.835602	-78.12785	WD207TMM, PSS/PEM wetland	

General Comments: PSS wetland located on stream bank and extends to agricultural field built on a terrace. Wetland is classified as PEM wetland in agricultural areas that have been mowed. Abutts perennial stream, and is adjacent to W142A, W141, and W141A. Wetland has 0.31 acres in ECL and continues downslope of Project (0.65 acres delineated) beyond ECL. AA includes entire 0.96 acres of the PSS/PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																				CI = Total Score/20															
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.						Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.													Total Score = SUM(%Areas*Scores)																							
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																				Total Score:															
	% ZOI Area:		0%			0%			10%			20%			60%			10%																		
	Score:		0			0			12			7			4			1																		
	Total Sub-score:		0.00			0.00			1.20			1.40			2.40			0.10																		
																				5.10		0.26														

Comments: Area includes stream, another wetland, agricultural fields, maintained forest, a dirt road, and residential development.

2. Roadbed Presence Index

Condition Categories																																								
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																								
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				

Comments: No roadbeds present within 100 feet of AA.

	Condition Categories																			CI = Total Score/20																			
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal					Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			
											Condition Score					Weighting		Sub-Scores																					
											a. Roadbed 0-100:					20		* (0.67)		13																			
											b. Roadbed 100-300:					17		* (0.33)		6																			
																		Total Score:		19		0.95																	

Comments: Dirt road for access to residential development within 300 feet of AA.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: One Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40				
b. Vegetation Stressor Presence	Optimal				Suboptimal				Marginal				Poor							
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:			11	Total Score		0.63			
Maintainence on agricultural land.											b. Vegetation Sub-Score:			14	25					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20					
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.		High Suboptimal: Two hydrologic stressors present within the AA boundary.			Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.			Greater than five hydrologic stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85
Comments: Maintainece on agricultural land.																Score:		17			

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																		
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85													
Comments: One stressor identified due to maintainece on agricultural land.																Score:		17																

6. Water Quality Stressor Index

	Condition Category																				
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal						Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2
Comments: No stressors identified.																					

Comments: No stressors identified.

	Condition Category																				CI = Total Score/40					
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor										
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.										
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments: No stressors identified.																a. Eutrophication Score					20		Total Score:			1.00
																b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.76

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/02/2018	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD207TMM	W142	41.835602	-78.12785					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	2		
Road Comments: Dirt road for access to residential development within 300 feet of AA.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/02/2018	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		2	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
loja		20%							

Total % relative cover of all invasives, collectively on site: 20 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/02/2018	0.06	W143	0.08	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.821705	-78.191506	WD209TMM, PEM wetland		

General Comments: PEM wetland located in depression within floodplain of stream. Abutts perennial stream, and is adjacent to W103 and W143A. Wetland has 0.06 acres in ECL and continues on both sides of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.08 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20															
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2		1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.													Total Score = SUM(%Areas*Scores)																						
2. Estimate the % area within each condition category. Calculators are provided for you below.																																			
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																			
Scoring:	Condition Category:																				Total Score:														
	% ZOI Area:		0%			0%			0%			0%			50%			50%																	
	Score:		0			0			0			0			4			1																	
	Total Sub-score:		0.00			0.00			0.00			0.00			2.00			0.50			2.50														
																				0.13															

Comments: Area includes stream, other wetlands, and agricultural fields.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																						
	Optimal					Suboptimal					Marginal						Poor																						
	<u>High Optimal:</u> No roadbeds present within 100 feet of the AA boundary					<u>Low Optimal:</u> Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					<u>High Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.						<u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					<u>High Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					<u>Low Marginal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					<u>High Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					<u>Low Poor:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																			

Comments: No roadbeds present in ZOI.

	Condition Categories															CI = Total Score/20																									
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal						Poor																								
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than to 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																					
																					Condition Score					Weighting					Sub-Scores										
											a. Roadbed 0-100:					20					* (0.67)					13															
											b. Roadbed 100-300:					20					* (0.33)					7															
																					Total Score:					20					1.00										

Comments: No roadbeds present in ZOI.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index																																		
a. Invasive Species Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No invasives present.	Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: One Invasive Species identified in wetland AA.																																		
4. Hydrologic Modification Index																																		
b. Vegetation Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No vegetation stressors present within the AA boundary.					Low Optimal: One vegetation stressor present within the AA boundary.					High Suboptimal: Two vegetation stressors present within the AA boundary.						Low Suboptimal: Three vegetation stressors present within the AA boundary.					High Marginal: Four vegetation stressors present within the AA boundary.					Low Marginal: Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Maintaine on agricultural land.																																		
															a. Invasive Sub-Score:		8		Total Score		0.55													
															b. Vegetation Sub-Score:		14		22															
5. Sediment Stressor Index																																		
Hydrologic Modification Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.						Low Suboptimal: Three hydrologic stressors present within the AA boundary.					High Marginal: Four hydrologic stressors present within the AA boundary.					Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: Maintaine on agricultural land.																																		
															Score:		17		0.85															
6. Water Quality Stressor Index																																		
Sediment Stressor Presence	Condition Category															CI = Total Score/20																		
	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: One stressor identified due to maintaine on agricultural land and active cow pasture.																																		
															Score:		17		0.85															
6. Water Quality Stressor Index																																		
a. Eutrophication Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.						Three eutrophication stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
b. Contaminant / Toxicity Stressor Presence	Condition Category															CI = Total Score/40																		
	Optimal					Suboptimal					Marginal						Poor																	
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.						Three contaminant / toxicity stressors present within the AA boundary.																	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														
Comments: No stressors identified.																																		
															a. Eutrophication Score		20		Total Score:		1.00													
															b. Contaminant Score		20		40															
Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.																																		
															Overall Condition Index:			0.73																

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/02/2018	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD209TMM	W143	41.821705	-78.191506					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		
Road Comments: No roadbeds present in ZOI.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/02/2018	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing	X		
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)	X		
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		2	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)	X		
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? **YES** NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
phar			30%						

Total % relative cover of all invasives, collectively on site: 30 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
agl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/03/18	0.04	W145	0.09
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.715968	-78.474561	WD212TMM, PEM wetland	

General Comments: PEM wetland located on hillside terrace at corner of agricultural plot and adjacent to forest (0.04 acres in ECL). PEM wetland continues downslope of Project (0.05 acres delineated) beyond ECL. AA includes entire 0.09 acres of the PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category															CI = Total Score/20																				
	Optimal					Suboptimal					Marginal						Poor																			
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, previous trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.																	Total Score = SUM(%Areas*Scores)																			
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		0%					0%					60%					0%						10%					30%							
	Score:		0					0					12					0						4					2							
	Total Sub-score:		0.00					0.00					7.20					0.00						0.40					0.60					8.20		
																					0.41															

Comments: Area includes maintained agricultural plot and forest with maintained understory.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
Comments: No roadbeds occur within AA.																																								

b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories															CI = Total Score/20																								
	Optimal					Suboptimal					Marginal						Poor																							
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.					High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.					Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																				
																	Condition Score					Weighting					Sub-Scores													
																	a. Roadbed 0-100:					20					* (0.67)					13								
																	b. Roadbed 100-300:					20					* (0.33)					7								
																						Total Score:					20													
Comments: No roadbeds occur within AA.																																								

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

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3. Vegetation Condition Index

Condition Category																																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.					Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1															

Comments: One Invasive Species identified in wetland AA at 20% cover.

	Condition Category															CI = Total Score/40										
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal						Poor									
	<u>High Optimal:</u> No vegetation stressors present within the AA boundary.					<u>High Suboptimal:</u> Two vegetation stressors present within the AA boundary.					<u>High Marginal:</u> Four vegetation stressors present within the AA boundary.						<u>Low Marginal:</u> Five vegetation stressors present within the AA boundary.					Greater than five vegetation stressors present within the AA boundary.				
	<u>Low Optimal:</u> One vegetation stressor present within the AA boundary.					<u>Low Suboptimal:</u> Three vegetation stressors present within the AA boundary.																				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1						
Comments:																										
Area includes maintained agricultural plot and forest with maintained understory.											a. Invasive Sub-Score:					11					Total Score					0.58
											b. Vegetation Sub-Score:					12					23					

4. Hydrologic Modification Index

Hydrologic Modification Index																					
Hydrologic Modification Stressor Presence	Condition Category																			CI = Total Score/20	
	Optimal			Suboptimal				Marginal				Poor									
	High Optimal: No hydrologic stressors present within the AA boundary.			Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.		High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.		Greater than five hydrologic stressors present within the AA boundary.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: One stressor identified due to agricultural plot.																Score:		17			0.85

5. Sediment Stressor Index

	Condition Category															CI = Total Score/20																		
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.85													
Comments: One stressor identified due to agricultural plot.																	Score:		17															

6. Water Quality Stressor Index

Water Quality Stressor: Max																					
a. Eutrophication Stressor Presence	Condition Category																				
	Optimal					Suboptimal					Marginal					Poor					
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.																					
b. Contaminant / Toxicity Stressor Presence	Condition Category																				CI = Total Score/40
	Optimal					Suboptimal					Marginal					Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00	
											b. Contaminant Score					20		40			

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.78

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/03/18	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD212TMM	W145	41.715968	-78.474561					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		
Road Comments: No roadbeds occur in AA.								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/03/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)	X			
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)				X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:		3		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				X
Total Number:		1		
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:				X
Total Number:		1		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	<i>Species Code</i>	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
mivi		20%							

Total % relative cover of all invasives, collectively on site: 20 %

Comments:

Common Invasives/Aggressives List

<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>	<i>Code</i>	<i>Common Name</i>	<i>Scientific</i>	<i>Status</i>
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/06/18	0.11	W148	0.17	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.328294	-78.201643	WD224TMM, PSS wetland		

General Comments: PSS wetland located along roadside in riverine valley. Intermittent stream drains into wetland. Wetland occurs in existing pipeline ROW (0.11 acres in ECL) and continues on both sides of Project (0.06 acres delineated) beyond ECL. AA includes entire 0.17 acres of the PSS wetland.

1. Wetland Zone of Influence Condition Index

		Condition Category															CI = Total Score/20																			
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					<u>High Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		<u>Low Suboptimal:</u> ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			<u>High Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		<u>Low Marginal:</u> ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			<u>High Poor:</u> ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		<u>Low Poor:</u> ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.																		
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6		5	4	3	2	1														
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)																							
Scoring:	Condition Category:																																			
	% ZOI Area:		0%					0%					80%					0%					20%					0%					Total Score:			
	Score:		0					0					12					0					4					0								
	Total Sub-score:		0.00					0.00					9.60					0.00					0.80					0.00						10.40		
																					0.52															

Comments: Area includes streams, existing pipeline ROW, and forest with maintained understory.

2. Roadbed Presence Index

Condition Categories																							
a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor									
	High Optimal: No roadbeds present within 100 feet of the AA boundary					Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.		High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.		High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		

[illegible]

	Condition Categories															CI = Total Score/20																
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																		
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.						Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1												
																Condition Score					Weighting			Sub-Scores					0.85			
																a. Roadbed 0-100:					17			* (0.67)			11					
																b. Roadbed 100-300:					17			* (0.33)			6					
																								Total Score:			17					

Comments: Existing pipeline ROW present.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																			
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No invasives present.		Low Optimal: <5% of the total AA contains invasive species.			High Suboptimal: >5% but less than 10% of the total AA contains invasive species.		Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.			High Marginal: >20% but less than 30% of the total AA contains invasive species.		Low Marginal: >30% but less than 50% of the total AA contains invasive species.			> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No Invasive Species identified in wetland AA.

	Condition Category															CI = Total Score/40						
b. Vegetation Stressor Presence	Optimal					Suboptimal					Marginal				Poor							
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.															
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1		
Comments:											a. Invasive Sub-Score:					20	Total Score					0.85
Maintenance on pipeline ROW											b. Vegetation Sub-Score:					14	34					

4. Hydrologic Modification Index

	Condition Category															CI = Total Score/20													
Hydrologic Modification Stressor Presence	Optimal					Suboptimal					Marginal			Poor															
	High Optimal: No hydrologic stressors present within the AA boundary.					Low Optimal: One hydrologic stressor present within the AA boundary.					High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.				High Marginal: Four hydrologic stressors present within the AA boundary.			Low Marginal: Five hydrologic stressors present within the AA boundary.					Greater than five hydrologic stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7		6	5	4	3	2	1							
Comments: Maintainece on pipeline ROW																Score:			17					0.85					

5. Sediment Stressor Index

	Condition Category														CI = Total Score/20															
Sediment Stressor Presence	Optimal					Suboptimal					Marginal			Poor																
	<u>High Optimal:</u> No sediment stressors present within the AA boundary.					<u>Low Optimal:</u> One sediment stressor present within the AA boundary.					<u>High Suboptimal:</u> Two sediment stressors present within the AA boundary.					<u>Low Suboptimal:</u> Three sediment stressors present within the AA boundary.			<u>High Marginal:</u> Four sediment stressors present within the AA boundary.			<u>Low Marginal:</u> Five sediment stressors present within the AA boundary.			Greater than five sediment stressors present within the AA boundary.					
	20 19 18 17 16					15 14 13 12 11					10 9 8 7 6			5 4 3 2 1																
SCORE															0.85															
Comments: One stressor identified due to maintainece on pipeline ROW																Score:	17													

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score					20		Total Score:		1.00
											b. Contaminant Score					20		40		

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.82

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/06/18	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD224TMM	W148	41.328294	-78.201643					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	2			100-300 ft.	2		
Road Comments: Existing ROW present								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/06/18	
		Occurrence in AA	
		Y	#s N
Vegetation Alteration			
Mowing			X
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)	X	1	
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X		
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:		2	
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X		
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:		1	
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:	X		
Total Number:		1	
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:		0	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:		0	

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
456456	NFG FM100 Project	08/07/18	0.11	W149	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
T. Malecki, M. Groomer		41.219774	-78.55829	WD226TMM, PSS wetland		

General Comments: PSS wetland located between road and stream. Intermittent stream runs through wetland. Wetland occurs in existing pipeline ROW (0.11 acres in ECL) and continues on both sides of Project (1.01 acres delineated) beyond ECL. AA includes 1.00 acre of the PSS wetland out of 1.12 acres that were delineated.

1. Wetland Zone of Influence Condition Index

	Condition Category																			CI = Total Score/20	
Wetland Zone of Influence (300 foot area around AA perimeter)	Optimal					Suboptimal					Marginal					Poor					
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.		High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.		Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.													Total Score = SUM(%Areas*Scores)								
Scoring:	Condition Category:																				Total Score:
	% ZOI Area:		0%			0%			30%			20%			20%			30%			
	Score:		0			0			12			7			4			1			
	Total Sub-score:		0.00			0.00			3.60			1.40			0.80			0.30			
																				0.31	

Comments: Area includes streams, other wetlands, existing pipeline ROW, forest with maintained understory, paved road, open water, and cleared land.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																			
	Optimal					Suboptimal					Marginal					Poor				
	High Optimal: No roadbeds present within 100 feet of the AA boundary		Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.			High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.		Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.		Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.		Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: Existing pipeline ROW and paved road present.

	Condition Categories																			CI = Total Score/20											
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Optimal					Suboptimal					Marginal			Poor																	
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary					Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.					High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.					Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.			High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.			Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.			High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.			Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
										Condition Score						Weighting			Sub-Scores												
										a. Roadbed 0-100:						13			* (0.67)			9									
										b. Roadbed 100-300:						13			* (0.33)			4									
																			Total Score:			13						0.65			

Comments: Existing pipeline ROW and paved road present.

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

3. Vegetation Condition Index

	Condition Category																																		
a. Invasive Species Presence	Optimal					Suboptimal					Marginal					Poor																			
	<u>High Optimal:</u> No invasives present.					<u>Low Optimal:</u> <5% of the total AA contains invasive species.					<u>High Suboptimal:</u> >5% but less than 10% of the total AA contains invasive species.					<u>Low Suboptimal:</u> >10% but less than 20% of the total AA contains invasive species.					<u>High Marginal:</u> >20% but less than 30% of the total AA contains invasive species.					<u>Low Marginal:</u> >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1														

Comments: No Invasive Species identified in wetland AA.

	Condition Category																CI = Total Score/40			
b. Vegetation Stressor Presence	Optimal			Suboptimal				Marginal				Poor								
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:					20	Total Score		0.85	
Maintenance on pipeline ROW											b. Vegetation Sub-Score:					14	34			

Maintenance on pipeline ROW

4. Hydrologic Modification Index

	Condition Category															C1 = Total Score/20					
	Optimal					Suboptimal					Marginal			Poor							
Hydrologic Modification Stressor Presence	High Optimal: No hydrologic stressors present within the AA boundary.		Low Optimal: One hydrologic stressor present within the AA boundary.			High Suboptimal: Two hydrologic stressors present within the AA boundary.		Low Suboptimal: Three hydrologic stressors present within the AA boundary.			High Marginal: Four hydrologic stressors present within the AA boundary.		Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.							
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Comments: Maintainece on pipeline ROW and runoff from road

5. Sediment Stressor Index

	Condition Category															C1 = Total Score/20																		
Sediment Stressor Presence	Optimal					Suboptimal					Marginal						Poor																	
	High Optimal: No sediment stressors present within the AA boundary.					Low Optimal: One sediment stressor present within the AA boundary.					High Suboptimal: Two sediment stressors present within the AA boundary.						Low Suboptimal: Three sediment stressors present within the AA boundary.					High Marginal: Four sediment stressors present within the AA boundary.					Low Marginal: Five sediment stressors present within the AA boundary.					Greater than five sediment stressors present within the AA boundary.		
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0													

Comments: Three stressors identified due to maintaince on pipeline ROW and construction in the area.

6. Water Quality Stressor Index

	Condition Category																			
a. Eutrophication Stressor Presence	Optimal					Suboptimal					Marginal					Poor				
	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

	Condition Category																			CI = Total Score/40
b. Contaminant / Toxicity Stressor Presence	Optimal					Suboptimal					Marginal				Poor					
	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.				Three contaminant / toxicity stressors present within the AA boundary.					
	SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	
Comments: No stressors identified.											a. Eutrophication Score				20		Total Score:		1.00	
											b. Contaminant Score				20		40			

Comments: No stressors identified.

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.68

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
NFG FM100 Project			08/07/18	T. Malecki, M. Groomer				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
WD226TMM	W149	41.219774	-78.55829					
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		
Road Comments: Existing ROW and paved road present								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X			
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		3		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algi2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/07/18	0.10	W149C	0.39
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.219321	-78.553844	RW228TMM, PEM wetland	

General Comments: PEM wetland located between stream and PSS wetland. Adjacent but not connected to W149D. Wetland occurs in existing pipeline ROW (0.10 acres in ECL); continues upslope of Project (0.27 acres delineated) and downslope of Project (0.02 acres delineated) beyond ECL. AA includes entire 0.39 acres of PEM wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20																			
	Optimal					Suboptimal					Marginal					Poor																				
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.					Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.					High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.					Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.					High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.					Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.					
	SCORE					2019181716					1514131211					109876					54321															
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.												Total Score = SUM(%Areas*Scores)																								
2. Estimate the % area within each condition category. Calculators are provided for you below.																																				
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																																				
Scoring:	Condition Category:																						Total Score:													
	% ZOI Area:		15%					15%					10%					10%																		
	Score:		14					12					9					7					4					1								
	Total Sub-score:		2.10					1.80					0.90					0.70					1.60					0.10					7.20			
																				0.36																

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																																
	Optimal				Suboptimal				Marginal				Poor																				
	High Optimal: No roadbeds present within 100 feet of the AA boundary				Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1													
Comments: Existing pipeline ROW and paved road present.																																	
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20																
	Optimal				Suboptimal				Marginal				Poor																				
	High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary				Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.					High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1													
																	Condition Score				Weighting		Sub-Scores		0.65								
																	a. Roadbed 0-100:				13		* (0.67)			9							
																	b. Roadbed 100-300:				13		* (0.33)			4							
																							Total Score:			13							

3. Vegetation Condition Index

a. Invasive Species Presence	Condition Category																																			
	Optimal					Suboptimal					Marginal						Poor																			
	High Optimal: No invasives present.					Low Optimal: <5% of the total AA contains invasive species.					High Suboptimal: >5% but less than 10% of the total AA contains invasive species.						Low Suboptimal: >10% but less than 20% of the total AA contains invasive species.					High Marginal: >20% but less than 30% of the total AA contains invasive species.					Low Marginal: >30% but less than 50% of the total AA contains invasive species.					> 50% of the total AA contains invasive species.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																
Comments: No Invasive Species identified in wetland AA.																																				
	Condition Category																																			

Wetland Condition Assessment Form

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Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

b. Vegetation Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:		20	Total Score		0.85				
Maintenance on pipeline ROW											b. Vegetation Sub-Score:		14	34						

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Maintenance on pipeline ROW and runoff from road											Score:		14		0.70					

5. Sediment Stressor Index

Sediment Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Three stressors identified due to maintenance on pipeline ROW and construction in the area.											Score:		12		0.60					

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No eutrophication stressors present within the AA boundary.	One eutrophication stressors present within the AA boundary.	Two eutrophication stressors present within the AA boundary.	Three eutrophication stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No contaminant / toxicity stressors present within the AA boundary.	One contaminant / toxicity stressors present within the AA boundary.	Two contaminant / toxicity stressors present within the AA boundary.	Three contaminant / toxicity stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score		20	Total Score:		1.00				
											b. Contaminant Score		20	40						

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.69

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW228TMM	W149C	41.219321	-78.553844	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X			
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		3		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
456456	NFG FM100 Project	08/07/18	0.03	W149D	0.12
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:	
T. Malecki, M. Groomer		41.219088	-78.552983	RW227TMM, PSS wetland	

General Comments: PSS wetland located between stream and PEM wetland. Adjacent but not connected to W149C. Wetland occurs in existing pipeline ROW (0.03 acres in ECL); continues upslope of Project (0.02 acres delineated) and downslope of Project (0.07 acres delineated) beyond ECL. AA includes entire 0.12 acres of PSS wetland.

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20										
	Optimal					Suboptimal					Marginal					Poor											
	ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.					High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.		Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.			High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.		Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.			High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.			Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5		4	3	2	1						
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above. 2. Estimate the % area within each condition category. Calculators are provided for you below. 3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.												Total Score = SUM(%Areas*Scores)															
Scoring:	Condition Category:																		Total Score:								
	% ZOI Area:		15%				15%				10%				10%												
	Score:		14				12				9				7				1								
	Total Sub-score:		2.10				1.80				0.90				0.70				1.60				0.10				7.20
																					0.36						

Comments: Area includes stream, another wetland, existing pipeline ROW, forest with maintained understory, paved road, open water, and cleared land.

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																												
	Optimal				Suboptimal				Marginal				Poor																
High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.			
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9		8	7	6	5	4	3	2	1				
Comments: Existing pipeline ROW and paved road present.																													
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20												
	Optimal				Suboptimal				Marginal				Poor																
High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary	Low Optimal: Roadbed presence score within 100 - 300 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 100 - 300 feet AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 6 but less than or equal to 8.					Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.			
	SCORE				20	19	18	17	16	15	14	13	12	11	10	9		8	7	6	5	4	3	2	1				
																	Condition Score						Weighting		Sub-Scores		0.65		
																	a. Roadbed 0-100:						13		* (0.67)			9	
																	b. Roadbed 100-300:						13		* (0.33)			4	
																							Total Score:		13				

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

b. Vegetation Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	High Optimal: No vegetation stressors present within the AA boundary.	Low Optimal: One vegetation stressor present within the AA boundary.	High Suboptimal: Two vegetation stressors present within the AA boundary.	Low Suboptimal: Three vegetation stressors present within the AA boundary.	High Marginal: Four vegetation stressors present within the AA boundary.	Low Marginal: Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:											a. Invasive Sub-Score:		20	Total Score		0.85				
Maintenance on pipeline ROW											b. Vegetation Sub-Score:		14	34						

4. Hydrologic Modification Index

Hydrologic Modification Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No hydrologic stressors present within the AA boundary.	Low Optimal: One hydrologic stressor present within the AA boundary.	High Suboptimal: Two hydrologic stressors present within the AA boundary.	Low Suboptimal: Three hydrologic stressors present within the AA boundary.	High Marginal: Four hydrologic stressors present within the AA boundary.	Low Marginal: Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Maintenance on pipeline ROW and runoff from road											Score:		14		0.70					

5. Sediment Stressor Index

Sediment Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/20											
	High Optimal: No sediment stressors present within the AA boundary.	Low Optimal: One sediment stressor present within the AA boundary.	High Suboptimal: Two sediment stressors present within the AA boundary.	Low Suboptimal: Three sediment stressors present within the AA boundary.	High Marginal: Four sediment stressors present within the AA boundary.	Low Marginal: Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.													
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: Three stressors identified due to maintenance on pipeline ROW and construction in the area.											Score:		12		0.60					

6. Water Quality Stressor Index

a. Eutrophication Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No eutrophication stressors present within the AA boundary.	One eutrophication stressors present within the AA boundary.	Two eutrophication stressors present within the AA boundary.	Three eutrophication stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments: No stressors identified.

b. Contaminant / Toxicity Stressor Presence	Optimal		Suboptimal		Marginal		Poor		CI = Total Score/40											
	No contaminant / toxicity stressors present within the AA boundary.	One contaminant / toxicity stressors present within the AA boundary.	Two contaminant / toxicity stressors present within the AA boundary.	Three contaminant / toxicity stressors present within the AA boundary.																
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments: No stressors identified.											a. Eutrophication Score		20	Total Score:		1.00				
											b. Contaminant Score		20	40						

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.69

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
NFG FM100 Project			08/07/18	T. Malecki, M. Groomer
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
RW227TMM	W149D	41.219088	-78.552983	

Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	1	2	2
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.	1	2	2	100-300 ft.	1	2	2
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4	0	100-300 ft.		1, 2 or 4	0
Total Scores:	0-100 ft.	4			100-300 ft.	4		

Road Comments: Existing ROW and paved road present

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		08/07/18		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing			X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)	X			
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:		2		
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)	X	1		
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:		2		
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)	X			
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)	X			
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:	X			
Total Number:		3		
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:		0		
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:		0		
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES **NO**

If listed species present, enter the percent areal coverage for each species below:

Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%

Total % relative cover of all invasives, collectively on site: 0 %

Comments:

Common Invasives/Aggressives List

Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	<i>Agrostis gigantea</i>	FACW	luhe	Water primrose	<i>Ludwigia hexapetala</i>	OBLW
algl2	European Alder	<i>Alnus glutinosa</i>	FACW	lyvu	Garden loosestrife	<i>Lysimachia vulgaris</i>	OBLW
arhi3	Carpetgrass	<i>Arthraxon hispidus</i>	FAC-	lysa2	Purple loosestrife	<i>Lythrum salicaria</i>	FACW
beth	Japanese barberry	<i>Berberis thunbergii</i>	FACW	maqu	European waterclover	<i>Marsilea quadrifolia</i>	OBLW
bevu	European barberry	<i>Berberis vulgaris</i>	FACW	mivi	Japanese stiltgrass	<i>Microstegium vimineum</i>	FAC
butom	Flowering Rush	<i>Butomus umbellatus</i>	OBLW	nami2	Water cress	<i>Nasturtium officinale</i>	OBLW
calli6	Pond water-starwort	<i>Callitriche stagnalis</i>	OBLW	pelo	Low smartweed	<i>Persicaria longiseta</i>	FACW
egde	Brazilian waterweed	<i>Egeria densa</i>	OBLW	phar	Reed canary grass	<i>Phalaris arundinacea</i>	FACW
elan	Russian olive	<i>Elaeagnus angustifolia</i>	FACU	phau7	Common Reed	<i>Phragmites australis</i>	OBLW
elum	Autumn olive	<i>Elaeagnus umbellata</i>	FACU	potr	Rough bluegrass	<i>Poa trivialis</i>	FACW
ephi	Hairy willow-herb	<i>Epilobium hirsutum</i>	FACW	pocu6	Japanese knotweed	<i>Polygonum (Faloia) cuspidatum</i>	FAC-
eppa5	Willow-herb	<i>Epilobium parviflorum</i>	FACW	pgpf	Mile-a-minute	<i>Polygonum perfoliatum</i>	FAC-
fasa	Giant knotweed	<i>Fallopia sachalinensis</i>	OBLW	puera	Kudzu-vine	<i>Pueraria lobata</i>	FAC-
gldi	Mudmats	<i>Glossostigma diandrum</i>	OBLW	pysp1	Apple/crabapple/pear	<i>Pyrus sp.</i>	FAC?
hola	Velvetgrass	<i>Holcus lanatus</i>	FAC	rhfr	Glossy Buckthorn	<i>Rhamnus frangula</i>	FAC-
huja	Japanese Hops	<i>Humulus japonicus</i>	FACU	romu	Multiflora rose	<i>Rosa multiflora</i>	FACU
loja	Japanese honeysuckle	<i>Lonicera japonica</i>	FAC-	tyan	Cattail (hybrid)	<i>Typha angustifolia</i>	OBLW
lomo	Morrow's honeysuckle	<i>Lonicera morrowii</i>	NI	tygl	Hybrid cattail	<i>Typha x glauca</i>	OBLW
lota	Tartarian honeysuckle	<i>Lonicera tatarica</i>					

Attachment G

Table 2.3-1: Waterbodies Crossed by the Project

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
Line YM58										
McKean	Stream 006	0.9	3.0	Minor	UNT to Wernwag Hollow	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 007	1.2	4.0	Minor	UNT to Wernwag Hollow	P	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Stream 008	1.4	6.5	Minor	Wernwag Hollow	P	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Stream 011	1.5	3.0	Minor	UNT to Wernwag Hollow	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 012	1.6	6.5	Minor	UNT to Wernwag Hollow	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 014	1.6	1.0	Minor	UNT to Wernwag Hollow	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 017	1.8	3.0	Minor	UNT to Wernwag Hollow	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 019	2.2	2.5	Minor	UNT to Browns Mill Hollow Run	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 020	2.2	2.5	Minor	UNT to Browns Mill Hollow Run	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 026	3.0	3.0	Minor	UNT to Robbins Brook	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 027	3.3	3.0	Minor	UNT to Robbins Brook	P	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Robbins Brook	3.4	27.0	Intermediate	Robbins Brook	P	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Donley Fork	3.6	7.0	Minor	Donley Fork	P	HQ-CWF	No	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Stream 160	4.2	3.0	Minor	UNT to Robbins Brook	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 030-1	4.9	3.0	Minor	UNT to Robbins Brook	E	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Ditch 02	6.1	3.0	Minor	--	D	--	--	Open Cut	None

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
McKean	Ditch 03	6.5	3.0	Minor	--	D	--	--	Open Cut	None
McKean	Ditch 05	6.5	5.0	Minor	--	D	--	--	Open Cut	None
McKean	Stream 037	6.6	26.2	Intermediate	UNT to Potato Creek	P	TSF	No/TSW	Dam and Pump/Flume	10/01 – 12/31
McKean	Potato Creek	6.8	205.16	Major	Potato Creek	P	TSF	No/TSW	HDD	3/1 – 6/15
McKean	Stream 038	7.1	5.0	Minor	UNT to Potato Creek	P	TSF	No/TSW	Dam and Pump/Flume	3/1 – 6/15
McKean	Stream 039	7.1	4.0	Minor	UNT to Potato Creek	IT	CWF	No	Dam and Pump/Flume	None
McKean	Stream 159	7.2	30	Intermediate	UNT to Potato Creek	E	CWF	No	Dam and Pump/Flume	None
McKean	Stream 040	7.9	3.00	Minor	UNT to Walcott Brook	E	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 041	7.9	9.44	Minor	UNT to Walcott Brook	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Stream 043	8.0	16.71	Intermediate	UNT to Walcott Brook	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Stream 054	10.4	8.50	Minor	Coalbed Hollow	P	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Stream 122	11.2	5.0	Minor	UNT to Bemis Hollow	E	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 055	11.2	20.18	Intermediate	Bemis Hollow	P	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Stream 056	11.3	3.0	Minor	UNT to Bemis Hollow	P	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Ditch 08	13.3	3.0	Minor	--	D	--	--	Open Cut	None
McKean	Ditch 09	13.3	6.5	Minor	--	D	--	--	Open Cut	None
McKean	Ditch 10	13.4	6.0	Minor	--	D	--	--	Open Cut	None
McKean	Stream 066	13.6	3.00	Minor	UNT to Allegheny Portage Creek	E	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Ditch 11	13.7	6.5	Minor	--	D	--	--	Open Cut	None

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
McKean	Ditch 12	13.7	3.0	Minor	--	D	--	--	Open Cut	None
McKean	Ditch 13	13.7	3.0	Minor	--	D	--	--	Open Cut	None
McKean	Allegheny Portage Creek	14.1	129.25	Major	Allegheny Portage Creek	P	TSF	Yes ⁵ /TSW	HDD	3/1 – 6/15
McKean	Stream 067	14.1	3.0	Minor	UNT to Allegheny Portage Creek	IT	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 068	14.2	6.5	Minor	UNT to Allegheny Portage Creek	E	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 070	14.3	6.5	Minor	UNT to Allegheny Portage Creek	IT	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Stream 071	14.5	3.0	Minor	UNT to Allegheny River	E	CWF	No	Dam and Pump/Flume	None
McKean	Stream 073	14.6	3.0	Minor	UNT to Allegheny River	E	CWF	No	Dam and Pump/Flume	None
McKean	Stream 074	14.7	3.0	Minor	UNT to Allegheny River	E	CWF	No	Dam and Pump/Flume	None
McKean	Stream 075	14.7	2.0	Minor	UNT to Allegheny River	IT	CWF	No	Dam and Pump/Flume	None
McKean	Allegheny River	14.8	169.61	Major	Allegheny River	P	CWF	No	HDD	10/01 – 12/31 10/1 – 5/31
McKean	Ditch 16	14.9	10.0	Minor	--	D	--	--	Open Cut	None
McKean	Ditch 17	14.9	6.5	Minor	--	D	--	--	Open Cut	None
McKean	Stream 077	15.0	17.80	Intermediate	UNT to Benson Hollow	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
McKean	Stream 078	15.4	3.50	Minor	UNT to Allegheny River	IT	CWF	No	Dam and Pump/Flume	None
McKean	Coleman Creek	15.7	16.15	Intermediate	Coleman Creek	IT	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
McKean	Ditch 18-1	17.5	3.0	Minor	--	D	--	--	Open Cut	None
McKean	Stream 089	18.1	3.0	Minor	UNT to Jordan Hollow	IT	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
Potter	Stream 091	18.1	3.0	Minor	UNT to Jordan Hollow	IT	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
Potter	Stream 092	18.1	1.0	Minor	UNT to Jordan Hollow	IT	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
Potter	Stream 090	18.1	18.14	Intermediate	Jordan Hollow	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
Potter	Stream 093	18.9	37.74	Intermediate	Ernst Hollow	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
Potter	Stream 094	19.1	27.98	Intermediate	UNT to Sartwell Creek	IT	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
Potter	Sartwell Creek	19.2	28.49	Intermediate	Sartwell Creek	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
Potter	Stream 096	19.6	33.00	Intermediate	UNT to Sartwell Creek	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
Potter	Stream 098	19.7	6.0	Minor	UNT to Sartwell Creek	E	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
Potter	Stream 099	21.8	21.50	Intermediate	Baker Hollow	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
Potter	Stream 156	23.0	37.38	Intermediate	Fishing Creek	P	CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
Potter	Stream 151	25.0	3.0	Minor	UNT to East Branch Fishing Creek	IT	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	None
Potter	Stream 116	26.7	3.0	Minor	East Branch Fishing Creek	P	HQ-CWF	Yes ⁵ /NRT	Dam and Pump/Flume	10/01 – 12/31 10/1 – 5/31
Potter	Whitney Creek	27.4	3.0	Minor	Whitney Creek	E	EV	Yes ⁵ /NRT	Dam and Pump/Flume	None
Potter	Stream 102	27.8	3.0	Minor	UNT to Whitney Creek	E	EV	Yes ⁵ /NRT	Dam and Pump/Flume	None
Potter	Stream 103	28.7	4.0	Minor	UNT to Whitney Creek	E	EV	Yes ⁵ /NRT	Dam and Pump/Flume	None
Line YM58 Access Roads										
McKean	Stream 021	PAR-3	3.0	Minor	UNT to Red Mill Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 022	PAR-3	3.0	Minor	UNT to Red Mill Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
McKean	Stream 023	PAR-3	3.0	Minor	UNT to Red Mill Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 025	PAR-3	3.0	Minor	UNT to Red Mill Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 024	TAR-4	3.0	Minor	UNT to Red Mill Brook	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 109	PAR-5	3.0	Minor	UNT to Irons Hollow	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 110	PAR-5	3.0	Minor	UNT to Irons Hollow	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 111	PAR-5	3.0	Minor	UNT to Irons Hollow	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 112	PAR-5	1.0	Minor	UNT to Irons Hollow	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 113	PAR-5	3.5	Minor	UNT to Irons Hollow	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 114	PAR-5	3.5	Minor	UNT to Irons Hollow	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 030-2	TAR-6	3.0	Minor	UNT to Robbins Brook	E	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 032	TAR-6	3.0	Minor	UNT to Robbins Brook	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 033	TAR-6	3.0	Minor	UNT to Robbins Brook	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 034	TAR-6	3.0	Minor	UNT to Robbins Brook	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 035	TAR-6	3.0	Minor	UNT to Robbins Brook	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 036	TAR-6	3.0	Minor	UNT to Robbins Brook	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Ditch 01	TAR-6	3.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
McKean	Stream 044	TAR-10	3.0	Minor	UNT to Walcott Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 045	PAR-12	3.0	Minor	UNT to Walcott Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
McKean	Stream 198	TAR-10	3.0	Minor	UNT to Walcott Brook	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 046	PAR-12	3.0	Minor	UNT to Walcott Brook	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 047	PAR-12	9.00	Minor	UNT to Walcott Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 048	PAR-12	1.00	Minor	UNT to Walcott Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 049	PAR-12	3.0	Minor	UNT to Walcott Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 050	PAR-12	3.0	Minor	UNT to Walcott Brook	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Ditch 06 - JUR	PAR-12	2.5	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
McKean	Stream 051	TAR-13	3.0	Minor	UNT to Walcott Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 052	TAR-13	6.5	Minor	UNT to Walcott Brook	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 053	TAR-13	2.5	Minor	UNT to Walcott Brook	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 057	PAR-14	3.0	Minor	UNT to Bemis Hollow	E	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 058	PAR-14	3.0	Minor	UNT to Bemis Hollow	E	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 118	PAR-14	6.5	Minor	UNT to Bemis Hollow	P	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	10/01 – 12/31 10/1 – 5/31
McKean	Stream 059	PAR-14	3.0	Minor	UNT to Bemis Hollow	E	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 060	PAR-14	3.0	Minor	UNT to Bemis Hollow	P	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	10/01 – 12/31 10/1 – 5/31
McKean	Stream 061	PAR-14	3.0	Minor	UNT to Bemis Hollow	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 062	PAR-14	6.5	Minor	Bemis Hollow	P	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	10/01 – 12/31 10/1 – 5/31

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
McKean	Stream 063	PAR-14	3.0	Minor	UNT to Bemis Hollow	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 064	PAR-14	3.0	Minor	UNT to Bemis Hollow	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 080	PAR-25	3.0	Minor	UNT to Benson Hollow	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 081	PAR-25	10.0	Minor	UNT to Benson Hollow	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Coleman Creek	PAR-25	10.0	Minor	Coleman Creek	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 082	PAR-25	3.0	Minor	UNT to Coleman Creek	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 083	PAR-25	3.0	Minor	UNT to Coleman Creek	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 084	PAR-25	3.0	Minor	UNT to Coleman Creek	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 085	PAR-25	3.0	Minor	UNT to Coleman Creek	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 196	PAR-25	3.0	Minor	UNT to Coleman Creek	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 086	TAR-28	3.0	Minor	UNT to Coleman Creek	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Ditch 18-2	TAR-28	3.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
McKean	Stream 085c	TAR-26	3.0	Minor	UNT to Jordan Hollow	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 085b	TAR-26	3.0	Minor	UNT to Jordan Hollow	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 085a	TAR-26	3.0	Minor	UNT to Jordan Hollow	E	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Ditch 18-3	TAR-26	3.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
McKean	Stream 195	SA-7	7.0	Minor	UNT to Potato Creek	E	CWF	Yes ⁵ /NRT	Existing Road, install temporary bridge	None
Potter	Stream 155	PAR-31	13.5	Intermediate	UNT to Fishing Creek	P	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	10/01 – 12/31 10/1 – 5/31

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
Potter	Stream 153	PAR-31	1.5	Minor	UNT to Fishing Creek	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
Potter	Stream 154	PAR-31	1.0	Minor	UNT to Fishing Creek	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
Potter	Ditch 29	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 30	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 31	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 32	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 33	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 34	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 35	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 36	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 37	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 38	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 39	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 40	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 41	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 42	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 43	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 44	PAR-31	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None

County	Waterbody Project ID	MP	Crossing Length ¹ (ft.)	FERC Waterbody Classification	Waterbody Name	Flow Regime ²	Designated Use and Water Quality Criteria ³	Wild Trout ^{4,5}	Crossing Method ⁶	In-Stream Work Restrictions ⁸
Potter	Ditch 53	PAR-36	3.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
McKean	Ditch 58 – JUR	PAR-14	3.0	Minor	--	E	--	--	Existing Road, No Improvements Proposed	None
McKean	Ditch 59 - JUR	TAR-11	3.0	Minor	--	E	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 28	PAR-32	1.5	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Stream 150	PAR-33	3.0	Minor	UNT to Fishing Creek	IT	CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
Potter	Ditch 20	PAR-33	2.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 21	PAR-33	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 24	PAR-33	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 22	PAR-33	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 23	PAR-33	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 25	PAR-33	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 26	PAR-33	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 27	PAR-33	1.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Potter	Ditch 21a	PAR-36	3.0	Minor	--	D	--	--	Existing Road, No Improvements Proposed	None
Marvindale Compressor Station Access Roads										
McKean	Stream 001	PAR-31	4.0	Minor	UNT to Warner Brook	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None
McKean	Stream 005	PAR-31	4.0	Minor	UNT to Warner Brook	IT	HQ-CWF	Yes ⁵ /NRT	Existing Road, No Improvements Proposed	None

Notes:

¹ Crossing length is the bank-to-bank width of the stream at the pipeline or access road centerline crossing.

² Flow regime based on onsite field review. IT – Intermittent; E – Ephemeral; and P – Perennial. As classified by PA Code Title 25 Chapter 93.

³ As classified by PA Code Title 25 Chapter 93.9 Designated Use shapefile. WWF – Warm Water Fishes; CWF – Cold Water Fishes; MF – Migratory Fishes; TSF – Trout Stocked Fishery; HQ – High Quality; and EV – Exceptional Value.

⁴ As classified by PA Code Title 25 Chapter 93 Existing Use and Existing Use Migratory Fish shapefiles. WWF – Warm Water Fishes; CWF – Cold Water Fishes; MF – Migratory Fishes; TSF – Trout Stocked Fishery; HQ – High Quality; and EV – Exceptional Value.

⁵ Regional listings of Approved Trout Waters are provided by the PFBC website: <http://pfbc.pa.gov/fishpubs/summaryad/troutwaters.html>. Accessed May 2018. Waterbodies within 0.5-mile of a confluence with an Approved Trout Water and within the upper and lower section(s) are also considered Approved Trout Waters.

⁶ As classified under PA Code Title 58, Chapters 57.4 and 57.11 as a Class A Wild Trout Water, Wild Trout Water, or Wilderness Trout Water. In-stream work restrictions for Wild Trout Waters are in effect between October 1 and December 31. All streams classified as Wilderness Trout Waters qualify as EV resources; consultation with PFBC is required to obtain information regarding in-stream construction restriction periods.

⁷ Stream is designated a wild trout stream because it is located upstream of a naturally reproducing wild trout stream.

⁸ If it is determined in the field during construction that either dam or pump or flume pipe methods are not possible; a wet trench method may be utilized. Open-cut methods will be evaluated at the time of construction to be used for streams if no flow is present.