July 25, 2020

Pennsylvania Department of Environmental Protection
Regional Permit Coordination Office
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17101

Attention: Kevin S. White, P.E.

Re: Conemaugh River Crossing Project
Application Number: E6583220-026
APS ID Number: 1017926; AUTH ID Number 1317195
Incompleteness Review Response

Dear Mr. White:

On behalf of Texas Eastern Transmission, LP (Texas Eastern), AECOM is hereby submitting this response to your Incompleteness Review of the Joint Permit Application referenced above on July 10, 2020. An electronic copy of the requested information discussed below has been provided.

The **comments**/*responses* are as follows:

1. **Regarding the PHMC correspondence for the project, one letter from PHMC was provided with the application (ER 2020-0684-042-B) dated May 6, 2020. In addition, no proof of receipt was provided. Please provide the proof of receipt in addition to all PHMC correspondence and associated responses relating to this project, including ER 2020-0684-042-A. §105.13(e)(1)(x), §105.14(b)(5), 105.21(a)(1)**

Proof of receipt of each submission to PHMC, as well as all correspondence with PHMC is included as an attachment to this response (Requirement D). Two submissions were provided to PHMC, and two responses were received.

2. **The construction plan drawing provided in Requirement H does not identify what types of wetlands are shown/impacted, does not show any E&S BMPs, and does not show the limits of the floodway and floodplain. Please ensure that wetland types are labeled (if the wetland polygon has more than one type, ensure that the boundary between the types is visually distinct), E&S BMPs are shown, and the limits of the floodway and floodplain are visible. §105.13(e)(1)(i)**

AECOM
715 Washington Boulevard
Williamsport, PA 17701
Tel: 570.505.1674
Fax: 570.505.1682

Per discussion with PADEP on 7/16/2020, no changes have been made to the construction plan (alignment sheet). Instead, a narrative explanation of E&S BMPs is included as an attachment to this response; detailed E&S drawings are included in Requirement M of the original submission. A revised Site Plan is also included in this response which clearly shows the limits of the floodplain, floodway, and wetland type boundaries (Requirement H).

3. **Certain elements of the site plan drawing provided in Requirement H are difficult to interpret or are missing. Please ensure that the limits of the floodplain, floodway, and wetland boundaries (particularly for the wetland polygons that exhibit multiple wetland types) are visually distinct. §105.13(E)(1)(I)**

A revised Site Plan is included in this response which clearly shows the limits of the floodplain, floodway, and wetland type boundaries (Requirement H).

4. **The project as proposed will permanently impact 0.10 ac of PFO wetlands, however, no permanent impacts are listed on the ARIT. Please review and revise as necessary. §105.13(e)(1)(x), §105.21(a)(1)**

A revised ARIT listing the permanent conversion of the PFO portion of wetland W-BJM-010 is included as an attachment to this response (Requirement J).

5. **Will PSS Wetland W-BJM-010 located within the ROW be permanently maintained in an emergent state? If so, this is considered a permanent wetland impact and should be incorporated into the ARIT and E.A. §105.13(e)(1)(x), §105.21(a)(1)**

The PSS portion of wetland W-BJM-010 will be permanently maintained in an emergent state as part of Texas Eastern's typical ROW maintenance program. This change has been included in the revised ARIT and E.A. attached to this response (Requirement J and L).

6. **Please provide subfacility details table for all proposed water obstruction(s) and encroachment activities, including any required details in accordance with the E.A. Form Instructions - Module S3.C, and E.A. Form Instructions - Appendices IV and V. §105.13(e)(1)(x); §105.15(c); E.A. Form Instructions, Module S3.C (DEP Doc. No. 3150-PM-BWEW0017, Rev. 6/2017)**

A subfacility details table has been include in the revised E.A attached to this response (Requirement L).

7. **Please ensure that all applicable information requested in the E.A. Form Instructions for Module S4.C (Compensatory Mitigation Items) is provided. §105.13(e)(1)(x), §105.15(c); E.A. Form Instructions (DEP Doc. No. 3150-PM-BWEW0017, Rev. 6/2017)**

Texas Eastern is in the process of contracting with a mitigation bank to purchase mitigation credits for compensatory mitigation however, this contract will not be in place before the submission deadline for this response. Per discussion with PADEP on 7/16/2020, PADEP has agreed to move forward to technical review of the application without these details in place, with the understanding that a permit will not be issued until a contract is established with the mitigation bank and reviewed by PADEP.

8. **In the mitigation plan, Texas Eastern stated that they "assume a mitigation ratio of 1:1 will be required to offset the conversion of PFO wetland to PEM". The Department is requesting a mitigation ratio of 2:1 for permanent conversion of Other PFO wetland to Other PEM. §105.13(e)(1)(ix), §105.20a(a)**

A revised Mitigation Plan with a mitigation ration of 2:1 is included in this response (Requirement T).

9. **Please submit the letter of consistency with Derry Township's Stormwater Management Ordinance. If the letter of consistency has not yet been received, please forward the letter upon receipt. §105.13(e)(1)(v)**

The letter of consistency is included as an attachment to this response (Requirement O).

10. **Within the Project Description, please provide the effect of the project on public health, safety and the environment. §105.13(e)(1)(x)**

A revised Project description is included as an attachment to this response (Requirement J).

Please place these revisions in your existing copies. If you have any questions or require additional information regarding the Joint Permit Application, please do not hesitate to contact me at (860) 888-2249 or email eileen.banach@aecom.com.

Sincerely,

AECOM

Eileen Banach
Scientist

cc: Mr. William Brett, Texas Eastern Transmission, LP

Requirement D

Cultural Resource Notice and Proof of Receipt

CULTURAL RESOURCES

Texas Eastern has a Categorical Exclusion (attached) for all work conducted in their existing easements. The current Categorical Exclusion will expire at the end of 2020; Texas Eastern will obtain a new Categorical Exclusion for the next coverage period. A Phase I archaeological survey (attached) has been conducted for those areas outside of the existing easement and submitted to the Pennsylvania State Historic Preservation Office (SHPO) for review. The SHPO response affirming the results of that survey is included herein.

Wyatt, Andrew

From: Hanson, Casey <chanson@pa.gov>
Sent: Tuesday, July 14, 2020 9:55 AM
To: Wyatt, Andrew
Subject: [EXTERNAL] Re: Delivery Confirmation Request: ER# 2020-0684-042
Attachments: C_20200684042B (1).pdf; C_20200684042A.pdf

Andrew

Yes we received both submissions and we responded to the Project Review Form on 1/31/2020 and the Archaeological Survey report on 5/6/2020 - see the attached.

Let me know if you need anything else.

Casey J. Hanson, PhD. | Archaeologist
Pennsylvania Historical and Museum Commission
State Historic Preservation Office
400 North Street, 2nd Floor | Harrisburg, PA 17120
Phone: 717.772.0923 | Fax: 717.772.0920
www.phmc.state.pa.us

Due to the Governor's order regarding COVID-19, the Pennsylvania Historical & Museum Commission (PHMC) offices throughout the state are closed. We are continuing to work remotely and will respond to your email as soon as possible. PHMC's historic sites and museums will remain closed until further notice.

From: Wyatt, Andrew <andrew.wyatt@aecom.com>
Sent: Tuesday, July 14, 2020 8:58 AM
To: Hanson, Casey <chanson@pa.gov>
Subject: [External] Delivery Confirmation Request: ER# 2020-0684-042

ATTENTION: *This email message is from an external sender. Do not open links or attachments from unknown sources. To report suspicious email, forward the message as an attachment to CWOPA_SPAM@pa.gov.*
Casey,

DEP has asked for confirmation that PA SHPO received two submittals from AECOM under ER# 2020-0684-042 (Texas Eastern Line 12 Anomaly Project, Westmoreland and Indiana Counties). Our submittals were dated January 24, 2020 and April 16, 2020. Can you please confirm that the PA SHPO received AECOM these submittals?

Thank you,

Andrew Wyatt, M.A.
Senior Archaeologist
~~C 1-717-380-7836~~ NEW 1.717.844.1290
andrew.wyatt@aecom.com

AECOM
100 Sterling Parkway, Suite 205
Mechanicsburg, Pennsylvania 17050
T 1-717-795-8001 F 1-717-795-8280
www.aecom.com

January 24, 2020

Mr. Douglas McLearen, Chief
Pennsylvania Historical and Museum Commission
Pennsylvania State Historic Preservation Office
Division of Environmental Review
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093

Re: Line 12 Anomaly Project, Derry Township, Westmoreland County and Blacklick Township, Indiana County, Pennsylvania

Dear Mr. McLearen,

Texas Eastern Transmission, LP (Texas Eastern) is proposing the Line 12 Anomaly Project (Project) in Westmoreland and Indiana Counties, Pennsylvania. Texas Eastern's categorical exclusion agreement with your office provides streamlined consultation for projects conducted in the maintained pipeline right-of-way. This Project requires workspace outside of the maintained pipeline right-of-way to support spoil storage and will therefore be authorized under the Federal Energy Regulatory Commission's Blanket Certificate program. As such, the Project requires consultation with your agency under Section 106 of the National Historic Preservation Act of 1966, as amended. A Project Review Form (Attachment 1), Project mapping and photographs (Attachment 2), and Texas Eastern's categorical exclusion agreement (Attachment 3) are enclosed.

Enbridge will relocate or replace their existing Line 12 across the Conemaugh River from Derry Township Westmoreland County to Blacklick Township, Indiana County using either a conventional open-cut or horizontal directional drill (HDD) method (Attachment 2, Figure 1). The majority of the workspace in either case will be located in Texas Eastern's previously disturbed and maintained right-of-way (ROW) where activities are covered under the categorical exclusion agreement. Approximately 5.6 acres of additional workspace outside of the north side of Texas Eastern's ROW will also be required (Attachment 2, Figure 2). The additional workspace on the east side of the Conemaugh River will be used for spoil stockpiling and equipment, and possibly some excavation if an HDD is employed. On the west side of the Conemaugh River, the additional workspace will be used for construction vehicle movement and spoil stockpiling after tree clearance; no excavation will take place.

A review of the Pennsylvania State Historic Preservation Office's Cultural Resources Geographic Information System indicated that archaeological site 36IN0188 is located in or near the 5.6-acre study area for the Project, which was designed by Texas Eastern to accommodate additional workspace outside of their ROW. No buildings are present in or near the Project; therefore, no effects to historic architectural resources are anticipated. On behalf of Texas Eastern, AECOM conducted a Phase I archaeological of the Study Area in accordance with your agency's guidelines. No archaeological sites were identified. AECOM will submit an Archaeological Negative Survey Form for your review when we have received an Environmental Review Number from your office.

I look forward to your review and comments. If you have any questions, please feel free to contact me at (717) 796-8019 or at andrew.wyatt@aecom.com.

Yours truly,

Andrew Wyatt, M.A.
Senior Archaeologist
AECOM
100 Sterling Parkway, Suite 205
Mechanicsburg, PA 17050
Tel: 717.796.8019
Fax: 717.795.8280

cc: Bill Brett (Texas Eastern), Bernard Holcomb (AECOM)

ATTACHMENT 1

PA SHPO PROJECT REVIEW FORM

Pennsylvania Historical & Museum Commission

PROJECT REVIEW FORM

Request to Initiate SHPO Consultation on State and Federal Undertakings

SHPO USE ONLY	Reviewers: ____/____
DATE RECEIVED:	DATE DUE:
ER NUMBER:	HRSF: _____

REV: 06/2018

SECTION A: PROJECT NAME & LOCATION

Is this a new submittal? ○ YES ◉ NO **OR** ○ **This is additional information for ER Number:** 2013-0118-091

Project Name: Line 12 Anomaly Project | County: Multiple | Municipality: Multiple

Project Address: See Attachment 2, Figure 1 | City/State/ Zip: Blairsville, PA

SECTION B: CONTACT INFORMATION & MAILING ADDRESS

Name: Andrew Wyatt | Phone: (717) 796-8019

Company: AECOM | Fax:

Street/PO Box: 100 Sterling Parkway, Suite 205 | Email: andrew.wyatt@aecom.com

City/State/Zip: Mechanicsburg PA 17050

SECTION C: PROJECT DESCRIPTION

This project is located on: (check all that apply) ☐ Federal property ☐ State property ☐ Municipal property ☑ Private property

List all federal and state agencies and programs providing funds, permits, licenses.

Agency Type	Agency/Program/Permit Name	Project/Permit/Tracking Number (if applicable)
Federal	FERC	

Proposed Work – Attach project description, scope of work, site plans, and/or drawings

Project includes (check all that apply): ☑ Construction ☐ Demolition ☐ Rehabilitation ☐ Disposition

Total acres of project area: 5.8 | Total acres of earth disturbance: 5.8

Are there any buildings or structures within the project area? ○ Yes ◉ No | Approximate age of buildings:

Does this project involve properties listed in or eligible for the National Register of Historic Places, or designated as historic by a local government?	Yes	No	Unsure	Name of historic property or historic districts
	○	◉	○	

Please print and mail completed form and all attachments to:

PHMC
State Historic Preservation Office
400 North St.
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120-0093

Attachments – Please include the following information with this form

- ☑ **Map –** 7.5' USGS quad showing project boundary and Area of Potential Effect
- ☑ **Description/Scope –** Describe the project, including any ground disturbance and previous land use
- ☑ **Site Plans/Drawings –** Indicate past and present land use, location and dates of buildings, and proposed improvements
- ☑ **Photographs –** Attach prints or digital photographs showing the project site, including images of all buildings and structures keyed to a site plan

SHPO DETERMINATION (SHPO USE ONLY)

- ☐ There are **NO HISTORIC PROPERTIES** in the Area of Potential Effect
- ☐ The project will have **NO EFFECT** on historic properties
- ☐ The project will have **NO ADVERSE EFFECTS** on historic properties:
- ☐ The project will have **NO ADVERSE EFFECTS WITH CONDITIONS** (see attached)
- ☐ **SHPO REQUESTS ADDITIONAL INFORMATION** (see attached)

SHPO REVIEWER: _____ **DATE:** _____

ATTACHMENT 2

FIGURES AND PHOTOGRAPHS

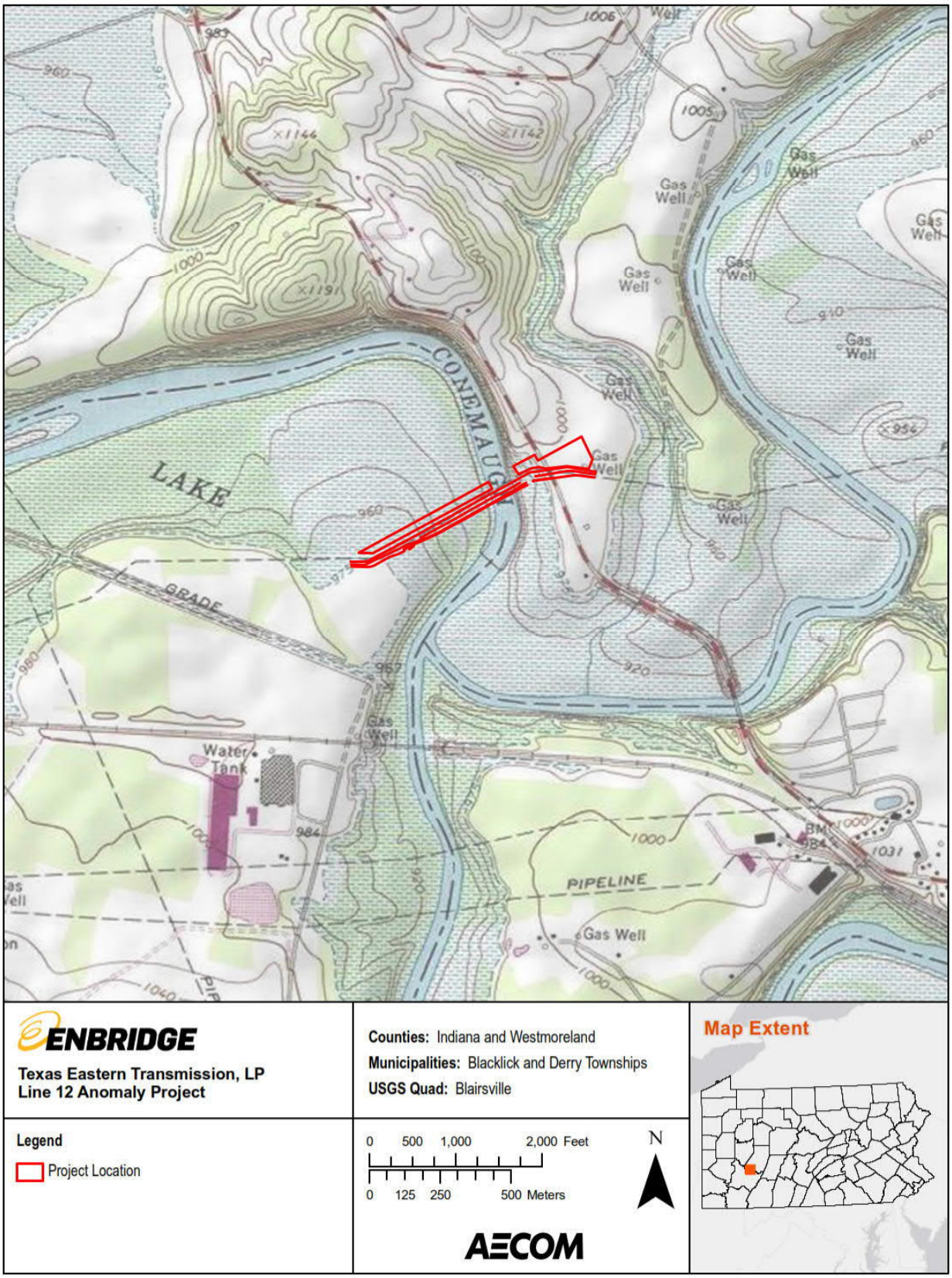

Figure 1: Project location map.

AECOM

ENBRIDGE

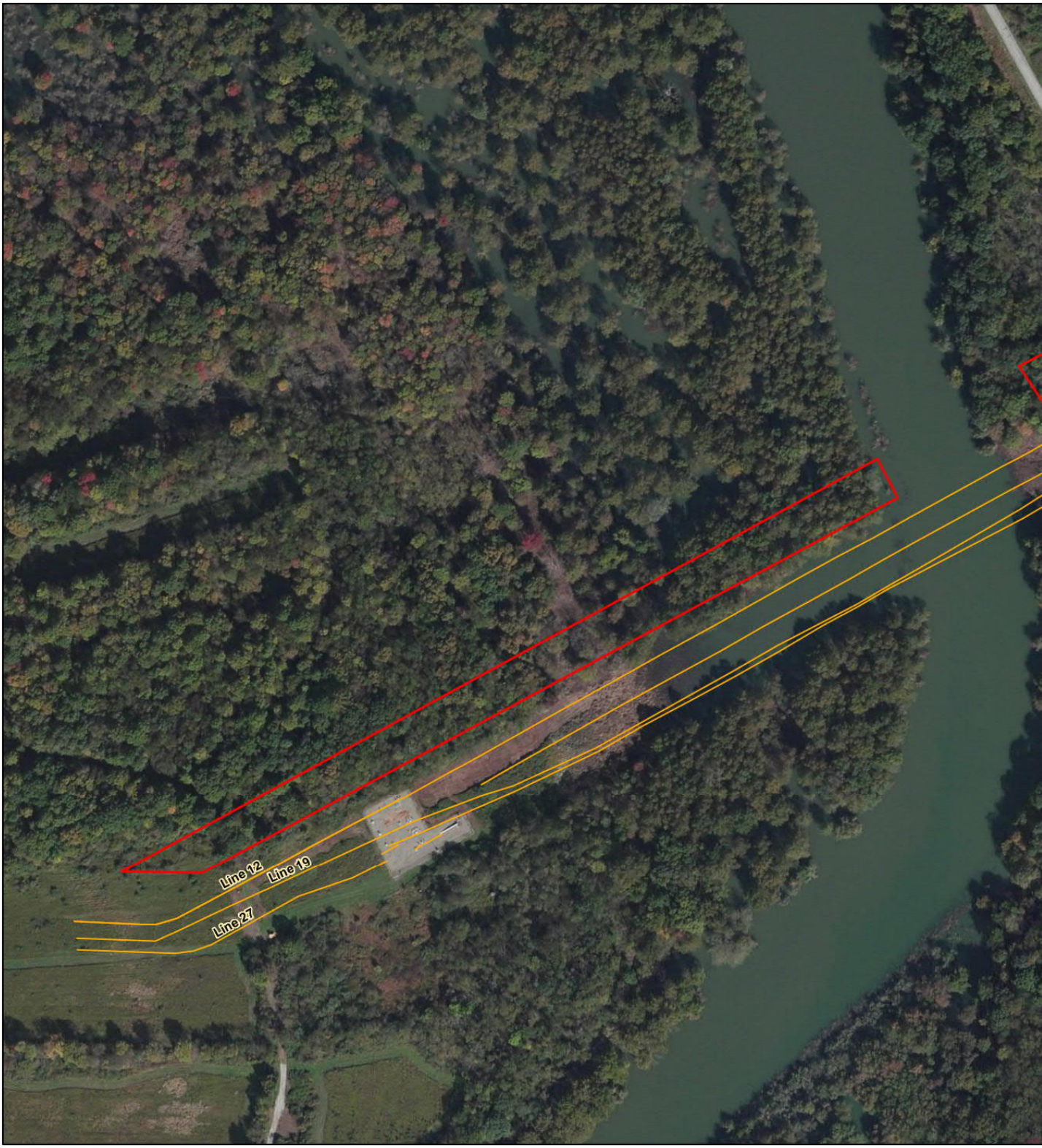

Figure 2: Project

plan.

Photograph 1: East bank of Conemaugh River, facing west.

Photograph 2: West bank of Conemaugh River, facing west.

ATTACHMENT 3

CATEGORICAL EXCLUSION AGREEMENT

TEXAS EASTERN TRANSMISSION, LP
Attn.: Sabrina Hepburn
890 Winter Street, Suite 300
Waltham, MA 02451

617-560-1424

Spectra Energy Partners

October 26, 2015

RECEIVED ON
OCT 30 '15
BUREAU FOR
HISTORIC PRESERVATION

Serena Bellew
Deputy State Historic Preservation Officer
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0093

Re: Texas Eastern Transmission, LP
Historic and Archaeological Categorical Exclusion Agreement for Pipeline Construction/Maintenance Activities in Pennsylvania
Pennsylvania SHPO ER #2003-0548-042-H

Dear Ms. Bellew:

Texas Eastern Transmission, LP (Texas Eastern), a wholly-owned subsidiary of Spectra Energy Partners, LP, is requesting a categorical exclusion renewal for a five (5) year period extending from January 1, 2016 through December 31, 2020 for pipeline construction and maintenance activities in Pennsylvania. Enclosed please find a copy of the current agreement which expires at the end of this year, along with a consultation agreement with similar language to that included in the previous agreement. If you concur with this request, please sign and date the enclosed agreement and return it to the following address:

Texas Eastern Transmission, LP
Attn.: Sabrina Hepburn
890 Winter Street, Suite 300
Waltham, MA 02451

All written correspondence should be directed to the above address. Texas Eastern believes that this agreement will continue to facilitate Texas Eastern's operations in Pennsylvania while still protecting potentially significant cultural resources.

If you have any questions or require additional information, please do not hesitate to contact Gregory R. Dubell at 401-575-0624 or gdubell@palinc.com. We appreciate your time and attention to this matter.

Sincerely,

Sabrina Hepburn

Sabrina Hepburn
Supervisor
Environmental Construction Permitting

Enclosures

HISTORIC AND ARCHAEOLOGICAL REVIEW PROCEDURES FOR PROJECTS IN PENNSYLVANIA – JANUARY 1, 2016 THROUGH DECEMBER 31, 2020

TEXAS EASTERN TRANSMISSION, LP

1. Where the Texas Eastern Transmission, LP (Texas Eastern) right-of-way (ROW) is maintained (i.e., periodic mowing) and has been previously disturbed by the original installation, then, for the following types of projects, there will be no contact with the Pennsylvania Historical and Museum Commission – Bureau for Historic Preservation, the office of the State Historic Preservation Officer (SHPO):

    a. construction and other activities on existing ROW, including the installation and maintenance, relocation, replacement, or abandonment and removal of receipt and delivery taps, meters, regulators, valves, pipe, points of delivery (POD), and other auxiliary pipeline facilities, as well as investigatory activities within existing, previously disturbed ROW;
    b. construction maintenance, relocation, replacement and/or abandonment projects within existing, previously-disturbed, and generally fenced compressor and metering and regulating (M&R) stations, yards and gas processing plants, and the installation of field compressors or dehydrators on an existing ROW;
    c. use of existing access roads and existing ROW as access to all construction and/or maintenance projects including minor maintenance or upgrades such as adding gravel, re-grading, and side trimming (pruning) of trees; and
    d. the acquisition of existing facilities by lease or purchase (no new ROW required).

2. A transmittal letter is required to serve as documentation of consultation with the Pennsylvania SHPO for projects not in the categories described in Stipulation 1:

    a. Texas Eastern will provide the Pennsylvania SHPO with a project description, a project map, a summary of its cultural resources review, and any other material helpful to the SHPO in making its recommendations for the project.

3. For projects located on Federal lands, the land managing agency or lead federal agency will be consulted.

Identification of Historic Properties

For construction and maintenance activities beyond the horizontal and vertical limits of prior ground disturbance, Texas Eastern will put forth an adequate effort to identify historic properties within the area of potential effect and begin consultation with the Pennsylvania SHPO as required under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800). Additionally, in the event of an unanticipated discovery, the attached Unanticipated Discovery Plan will be followed.

Termination of This Agreement

This Agreement shall be in effect for five (5) years, extending from January 1, 2016 through December 31, 2020. At the written request of either party, this Agreement may be reviewed for possible modification at any time.

Reporting

Texas Eastern will provide the Pennsylvania SHPO a summary of all the projects completed under this agreement on an annual basis, including USGS quadrangle maps showing the location(s) of all projects identified in the summary report. This report shall be submitted by January 31st for each year during the five (5) year agreement.

Sabrina Hepburn 10/26/2015

Sabrina Hepburn Date
Supervisor, Environmental Construction Permitting
Texas Eastern Transmission, LP

Nov 9, 2015

Serena Bellew Date
Deputy State Historic Preservation Officer
Pennsylvania SHPO

January 31, 2020

Andrew Wyatt
AECOM
100 Sterling Parkway, Suite 205
One Sterling Place
Mechanicsburg, PA 17050

Re: File No. ER 2020-0684-042-A
FERC Blanket Certification Program: Texas Eastern Transmission, LP Proposed Line 12 Anomaly Relocation & Replacement Project, Derry Twp., Westmoreland Co, Blacklick Twp., Indiana Co.

Dear Mr. Wyatt:

Thank you for submitting information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

Above Ground Resources

There may be above ground historic properties within the project area of potential effect. However, in our opinion the project as proposed will have no effect on historic properties, should they exist. Should the scope and/or nature of the project change the PA SHPO should be contacted immediately.

Archaeological Resources

Based on our files and the information provided, it is our opinion that there are no archaeological resources present. Should new information be brought to your attention regarding historic properties located within the project area of potential effect, please notify the PA SHPO at (717) 783-8947 for reconsideration of the project.

Sincerely,

Douglas C. McLearen, Chief
Division of Environmental Review

DCM/tmw

April 16, 2020

Mr. Douglas McLearen
Pennsylvania Historical & Museum Commission
Pennsylvania State Historic Preservation Office
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093

RE: ER # 2020-0684-042
Archaeological Negative Survey Report
Texas Eastern Transmission, LP Line 12 Anomaly Project, Westmoreland and Indiana Counties, Pennsylvania

Dear Mr. McLearen:

AECOM performed a Phase I archaeological survey for the above-named project on behalf of Texas Eastern Transmission, LP (Texas Eastern). No archaeological sites were identified within the project's area of potential effects; therefore, AECOM recommends that the project will have no effect on historic properties and that no further archaeological investigation is warranted in the APE. The results of the archaeological survey are documented in an Archaeological Negative Survey Form that has been uploaded to the Cultural Resources Geographic Information System for your review and comment.

If you have any questions regarding the project, please contact me at (717) 796-8019 or via e-mail at andrew.wyatt@aecom.com.

Yours truly,

AECOM

Andrew Wyatt, M.A.
Senior Archaeologist

AECOM
100 Sterling Parkway, Suite 205
Mechanicsburg, PA 17050
Tel: 717.796.8019
Fax: 717.795.8280

cc: William Brett (Texas Eastern), Eileen Banach (AECOM)

Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

Negative Survey Form

(This form may be used if the Phase I guidelines have been followed and no cultural resources have been identified.)

1. Project Identification:

ER Number: 2020-0684-042

Project Name &/or Agency Tracking #: Line 12 Anomaly Project

Agency: FERC **Applicant:** Texas Eastern Transmission, LP

Preparers Name and affiliation: Janna Napoli, MAA, and Michael Way, BS

Date Prepared: April 8, 2020

Project Area County/Municipality (list all)

County	Municipality
Westmoreland Indiana	Derry Twp. Blacklick Twp.

2. Project Setting: (check all that apply)

☐ urban/suburban; ☒ rural
☐ upland; ☒ floodplain/terrace (☒ active; ☒ stable terrace)

7.5" USGS Quadrangle(s) Name (list all):

Name	Date
Blairsville	1981

Physiographic Zone(s)(list All. Use DCNR Map 13 compiled by W.D. Sevon, Fourth Edition, 2000.):

Physiographic Zone
Appalachian Plateaus Province, Pittsburgh Low Plateau Section

Project Area Drainage(s), (list all) (Sub-basin and Watershed can be obtained from CRGIS):

Sub-basin	Watershed	Major Stream	Minor Stream
Lower Allegheny River (18)	D	Conemaugh River	Blacklick Creek

3. Basic Field Conditions:

(Text fields will expand as needed. Please be complete)

Area of APE / Project Area in hectares: 3.69 Hectares tested: 3.69

General Description of APE / Project Area: Due to a detected anomaly, Texas Eastern Transmission, LP (Texas Eastern) will relocate or replace their existing Line 12 across the Conemaugh River from Derry Township, Westmoreland County to Blacklick Township, Indiana County using either a conventional open-cut or horizontal directional drill (HDD) method (Attachment A, Figure 1). The majority of the workspace in either case will be located in Texas Eastern's previously disturbed and maintained right-of-way (ROW) where activities are covered under their categorical exclusion agreement with the Pennsylvania State Historic Preservation Office (PA SHPO) (Attachment A, Figure 2). Approximately 3.69 hectares (~9.1 acres) of additional workspace outside of Texas Eastern's ROW will also be required. The additional workspace on the east side of the Conemaugh River will be used for spoil

stockpiling and equipment, and possibly some excavation if an HDD is employed. On the west side of the Conemaugh River, the additional workspace will be used for construction vehicle movement and spoil stockpiling after tree clearance; no excavation will take place. The Phase I archaeological survey was conducted in an approximately 3.69 hectares (~9.1 acres) Study Area that accommodates the additional workspace outside of Texas Eastern's ROW. The Study Area served as the area of potential effects (APE) for the Project.

Type of Proposed Project / Impact: Pipeline replacement

Date of field investigation(s): December 17,18, 2019; January 8, 2020; and March 5, 2020

Description of Field Conditions including percentage of surface visibility: Phase I Survey was conducted on four cloudy days during the winter. There was no surface soil visibility in the Study Area due to vegetation.

4. Previously Recorded Archaeological Sites within APE / Project Area and not relocated by this project:

PASS Site Number	Reason not re-located
None	Not Applicable

5. Survey Methodology: (check all that apply to the entire project; attach any supporting documents)

☒ PASS file Research ☐ Contacted Local Historical Association/Commission/Park/Etc.
☐ Informant Data ☒ Historic Records/Maps/Photos ☒ SCS Soil Maps
☐ Surface Survey ☐ Geomorphological Borings ☒ STPs
☐ Test Units ☐ Geomorphological Trenches ☐ Remote Sensing
Other: _____

Professional Geomorphologist was ☐ Present or ☒ Not Present During Field Investigations

Name: _____ Affiliation: _____

Formal Geomorphological Report Prepared: ☐ Yes ☒ No

6. Results: (Describe both the design and the results of every methodology checked in **5.** Include the size and condition of the area tested by each.)

PASS File Research

Review of the PA SHPO's Cultural Resources Geographic Information System (CRGIS) identified 11 recorded archaeological sites and seven previous archaeological surveys within a 1.6-kilometer (1.0-mile) radius of the Study Area (Tables 1 and 2). Of the 11 sites, three are mapped in close proximity to the Study Area (36IN0004, 36IN0188, 36IN0318). Sites 36IN004 and 36IN0318, located approximately 50 meters (~160 feet) to the north and east of the Study Area, respectively, are small Native American open habitation sites. No diagnostic artifacts were recovered from either site, and neither has been evaluated for listing in the National Register of Historic Places. Site 36IN0188, the purported location of Newport village (ca. 1790-1800), was investigated prior to construction of Texas Eastern's Delmont Loop (Line 27) in 1981 (Mitchum 1983). Twenty-four one-meter-square (3.3-foot square) test units were excavated at 10-meter (33-foot) intervals in the 23-meter (75-foot) wide ROW for Line 27 west of Conemaugh River. A total of 282 historic artifacts and nine Native American artifacts were recovered from the plowzone in 19 of the test units (Mitchum 1983:36-37). Although several artifacts were recovered that spanned the late eighteenth through early nineteenth century, no features could be conclusively linked with Newport village and no further archaeological investigations were recommended (Mitchum 1983:39). Phase I archaeological survey for Texas Eastern's Line 27 covered high terrace settings on the east bank of the Conemaugh River and did not identify archaeological sites near the Study Area (McHugh 1982). The remaining sites listed in Table 1 consist of small Native American open habitation sites and a historic domestic site and are mapped within 0.2 to 1.64 kilometers (0.15 miles to 0.99 miles) of the Study Area.

The PA SHPO's Pre-Contact Predictive Model (Model) ranks the Study Area as having a mix of high and medium probability for Native American archaeological sites that generally conforms to non-statistical models of Native American site locations in western Pennsylvania.

Table 1: Recorded Archaeological Sites within 1.6 Kilometers (1.0 Mile) of the Study Area

Site #	Temporal Period	Site Type	NR Status	Landform
36IN0003	Prehistoric: Components Unknown	Open Habitation	Unevaluated	Low Terrace
36IN0004	Prehistoric: Components Unknown	Open Habitation	Unevaluated	High Terrace
36IN0005	Prehistoric: Components Unknown	Open Habitation	Unevaluated	High Terrace
36IN0014	Prehistoric: Components Unknown	Open Habitation	Unevaluated	High Terrace
36IN0188	Prehistoric: Components Unknown Historic: Late 18th-Early 19th c.	Open Habitation/ Domestic Village	Unevaluated	High Terrace
36IN0316	Prehistoric: Components Unknown	Open Habitation	Unevaluated	High terrace
36IN0318	Prehistoric: Late Archaic	Open Habitation	Unevaluated	High Terrace
36IN0401	Prehistoric: Components Unknown	Open Habitation	Unevaluated	Middle Slope
36WM0004	Prehistoric: Components Unknown	Open Habitation	Unevaluated	High Terrace
36WM0530	Prehistoric: Components Unknown	Isolated Find	Unevaluated	High Terrace
36WM1055	Historic: 19th-20th c.	Farmstead	SHPO-Not Eligible	Middle Slope

Table 2: Archaeological Surveys within 1.6 Kilometers (1.0 Mile) of the Study Area

ER #	Title	Reference	Sites identified	Distance from Study Area
1981-0119-042-B	*Cultural Resources Survey, Texas Eastern Transmission Corporation's Pipeline Rights of Way, Berks, Blair, Cambria, Dauphin, Juniata, Lebanon, Montgomery, Perry, and Westmoreland Counties*	McHugh, W. (1982)	15	0.02 km (0.01 mi)
1981-0119-042-C	*Additional Cultural Resources Investigations, Phase III Expansion of the SS-II Pipeline Rights-of-Way, Berks, Blair, Dauphin, Indiana, Lebanon, and Perry Counties*	Mitchum, B. (1983)	5	0.02 km (0.01 mi)
1991-1835-063-S	*Phase I Archaeological Survey, Route 119 South Improvement Project Wetland Mitigation, Burrell Township, Indiana County.*	Espenshade, C. (2000)	0	0.56 km (0.35 mi)
1999-8018-042-C	*Phase I Archaeological Study, Conemaugh Dam Trail, Conemaugh River Lake, Indian and Westmoreland Counties*	Campbell, D. (1999)	0	0.42 km (0.26 mi)
2012-1771-042-B	*Phase I Archaeological Survey, Proposed H-400 Gathering Line, Indiana and Armstrong Counties*	Shreckengost, B. (2012)	6	0.53 km (0.33 mi)
2012-1771-042-D	*Negative Survey Form, Addendum I, Proposed H-400 Gathering Line, Indiana and Armstrong Counties*	Hood, A. (2012)	0	1.38 km (0.86 mi)
2014-0223-129-B	*Phase I Archaeological Report, Derry Connector Pipeline and Compressor Station, Derry Township, Westmoreland County*	McKissick, J. (2013)	1	1.38 km (0.86 mi)

Historic Maps

The 1867 *Atlas of Westmoreland County Pennsylvania* (Attachment A, Figure 3), the 1871 *Atlas of Indiana County Pennsylvania* (Attachment A, Figure 4), twentieth-century topographic maps (Attachment A, Figures 5, 6), and modern aerials provided by Google Earth® were examined in order to determine whether nineteenth or early-twentieth century structures may be present within the Study Area. No structures are depicted in the Study Area on

any of the historic maps or aerials. Newport village, however, is mapped in close proximity to the Study Area on the 1871 map (Attachment A, Figure 4). The village is labeled as "Old Newport or The deserted Village." The area depicted corresponds to the mapped location of Site 36IN0188 in CRGIS.

Soils

Soils in the Study Area include mapping units of the Monongahela series (SSURGO 2019). On the west side of the Conemaugh River, Monongahela silt loam, 3 to 8 percent slopes is mapped on a high terrace and floodplain. These mapping units are separated by an area of Monongahela silt loam, 8 to 15 percent slopes which corresponds to the terrace riser between the high terrace and floodplain. On the Conemaugh River's east side, Monongahela silt loam, 8 to 15 percent slopes is mapped from the river bank east to Newport Road. West of Newport Road, Monongahela silt loam, 3 to 8 percent slopes are mapped on another high terrace The Monongahela series consists of moderately deep moderately well drained soils that formed in old alluvium from soils derived largely from acid sandstone and shale. They are frequently found on terraces and toeslopes of Glacial Lake Monongahela (ca. 22,000 to 800,000 years ago) (Harper 2002). The typical soil profile consists of Ap-BA-Bt-Btx1-Btx2-Btx3-C horizons that can extend up to 1.65 meters (5.4 feet) below ground surface (bgs). Based on its pre-Wisconsinan age, archaeological sites in Monongahela series soils on the high terraces would be restricted to the plowzone and upper subsoil.

Fieldwork Methods and Results

Archaeological fieldwork was conducted on December 17 through 18, 2019; January 8, 2020; and March 5, 2020. The Study Area encompassed a total of 3.69 hectares (~9.1 acres) (Attachment A, Figure 7a, b, c). The Study Area covered additional temporary workspace outside of Texas Eastern's ROW. Survey Section (Section) 1 was located west of the Conemaugh River, Section 2 was located east of the Conemaugh River. A total of 164 shovel test pit (STP) locations were pre-plotted in a handheld Global Positioning System. STPs were plotted in west- to east-trending transects spaced 15 meters (49.2 feet) apart. STPs were spaced at 15-meter (49.2-foot) intervals along each transect. In-field assessment of archaeological sensitivity, previous disturbance, and other factors guided the decision on which STPs were excavated, or if judgmental testing was necessary to adequately sample a given area. The survey strategy is discussed further in Attachment C. Survey coverage is depicted in Attachment A, Figures 7a and 7b.

STPs measuring 0.57 meters in diameter (1.9 feet) were excavated by natural soil strata. All excavated soils were screened through six-millimeter (0.25-inch) hardware mesh for systematic artifact recovery. Archaeologists recorded data for each STP (Munsell readings, soil textures, artifact number and type) on standardized forms. Landforms and disturbance were documented with digital photographs. At the conclusion of field investigations, all excavated areas were backfilled, leveled, and left as close to original condition as possible.

Section 1 was located west of the Conemaugh River and included three distinct landforms. A high terrace extended from the western boundary of Section 1 to the vicinity of STP A14 (Attachment A, Figure 7a, b; Attachment B, Photograph 1). The terrace is relatively level and rises approximately 21 meters (~70 feet) above the Conemaugh River. From STP A14 to STP A16, a steep terrace riser descends to the Conemaugh River floodplain. The floodplain surface is approximately 1.8 meters (~6 feet) above the Conemaugh River near STP A34 and rises to approximately 18 meters (~60 feet) above the river near the terrace riser (Attachment B, Photograph 2). In December 2019, flooding extended from the river bank to STPs A24 and B22 (Attachment B, Photograph 3). Soils were saturated to the base of the terrace riser; therefore, excavation was restricted to the high terraces on both sides of the river. By January, floodwaters had receded approximately 100 meters (~30 meters) to the vicinity of STPs A29 and B27. The Conemaugh Dam, located 5.5 kilometers (~3.4 miles) northwest of the Study Area, provides flood protection for the lower Conemaugh Valley. When rainfall, melting snow, or stream flows indicate

the possibility of flooding, run-off is retained behind the Conemaugh Dam and stored until it can be released without increasing flood conditions downstream of the dam.

The high terrace and floodplain in the Study area were covered by deciduous trees and a moderately dense understory. A large wetland was located within the westernmost portion of the section, which consisted of tall grasses and other wetland vegetation with frequent standing water (Attachment B, Photographs 4 and 5). Texas Eastern's cleared ROW abutted the Study Area. A total of 94 STPs were pre-plotted in Section 1. Of these, five were not excavated due to excessive slope on the terrace riser and disturbance from an existing access road, and 21 were not excavated due to flooding or standing water. STPs on the high terrace displayed a 0.15 to 0.3-meter (0.49 to 0.98-foot) Ap horizon underlain by a Bt horizon, which is consistent with typical Monongahela series soil profiles. STP A7 and is representative of the soil profile encountered on the high terrace (Attachment A: Figure 8a). STP A7 consisted of a 0.15-meter (0.49 feet) brown (10YR 4/3) weak granular silt loam Ap horizon underlain by a brownish yellow (10YR 6/6) strong subangular blocky silty clay loam Bt horizon. Both horizons contained less than five percent pebbles. Soils within the wetland consisted of a 0.23 to 0.31-meter (0.75 feet to 1.02 feet) weak silt loam Ap horizon underlain by a silty clay loam B horizon. Water within STPs was encountered at varying depths, between 0.03 meters and 0.21 meters (0.09 feet and 0.69 feet). STP D3 was representative of the soil profile encountered in the wetland (Attachment A: Figure 8a). STP D3 contained a 0.31 meter (1.02 feet) dark brown (10YR 3/3) weak silt loam Ap horizon with iron oxide underlain by a light yellowish brown (10YR 6/4) silty clay loam B horizon. Water began to saturate the sides of STP D3 at a depth of 0.21 meters (0.69 feet).

Floodplain soils consisted of a 0.21 meter to 0.8 meter (0.69 feet to 2.62 feet) structureless silt loam AC horizon underlain by a weak subangular blocky silty clay loam Bw horizon. Water seepage in the STPs was encountered at varying depths across the floodplain. Depth to infiltrating water in the STPs ranged from 0.7 meters (0.36 feet) bgs on distal portions of the floodplain to 0.11 meters (0.4 feet) bgs near the STP 27. STP B19 and B20 were representative of STPs on the floodplain (Attachment B, Figure 8b). STP B19 contained a 0.50-meter (1.64-foot) brown (10YR 4/3) structureless silt loam AC horizon underlain by a strong brown (7.5YR 5/8) weak subangular blocky silty clay loam Bw horizon. Excavation terminated on cobbles at 0.73 meters (2.39 feet) bgs. Water began to saturate the sides of STP B19 at a depth of 0.45 meters (1.48 feet). The soil profile exposed in STP B20 was similar to that of STP B19, except that the AC horizon in STP B20 was deeper and cobbles were not contacted. Based on its lack of structure, the AC horizon is composed of modern flood sediment. No artifacts were recovered from Section 1 and no archaeological sites were identified.

Section 2 began 42 meters (138 feet) east of the Conemaugh River and was bisected by Newport Road (Attachment A, Figure 7c). Slopes exceeding 15 percent were present between the Conemaugh River and Newport Road (Attachment B: Photograph 6). The slope was covered in deciduous trees and a moderately dense understory. A level, high terrace lies approximately 26 meters (~85 feet) above the Conemaugh River and extends east from Newport Road to the eastern boundary of Section 2. The portion of Section 2 on the high terrace is wooded east to STPs C7 and D6 and was in cut corn interspersed with tree lines to the eastern end of the section (Attachment B, Photograph 7).

A total of 70 STPs were pre-plotted in Section 2. Of these, 14 were not excavated due to excessive slope or road disturbance. Soils on the high terrace consisted of a 0.2 meter to 0.4-meter (0.66 to 1.3-foot) silt loam Ap horizon underlain by a well-developed Bt horizon. STP F5 displayed a typical soil profile for the high terrace, consisting of a 0.28-meter (0.92-foot) brown (10YR 4/3) weak, granular silt loam Ap horizon underlain by a yellowish brown (10YR 5/8) silty clay loam Bt horizon with strong, subangular block structure (Attachment A: Figure 8c). Both horizons contained less than 5 percent rock fragments. STP C5 was representative of the variability of the depth of the Ap horizon. STP C5 displayed a 0.20-meter (0.66-foot) brown (10YR 4/3) weak granular silt loam Ap horizon underlain by a yellowish brown (10YR 5/8) silty clay loam Bt horizon with strong, subangular blocky structure (Attachment A: Figure 8c). Both horizons contained less than 5 percent rock fragments. No artifacts were recovered

from Section 2 and no surface indications of 36IN0188 were observed. No archaeological sites were identified in Section 2.

Summary

A total of 124 STPs were excavated in the Study Area. No artifacts were recovered, and no archaeological sites were identified. Although testing on the Conemaugh River floodplain did not reach clear C horizon deposits, the landform is mantled by a 0.5- to 0.7-meter (1.6- to 2.3-foot) thick deposit of modern flood deposits. The floodplain will be used for construction vehicle movement and spoil stockpiling after vegetation is removed; no excavation will take place. Based on these findings, AECOM recommends that the Project will have no effect on historic properties and that no further archaeological investigations are warranted within the Study Area.

7. Statewide Pre-Contact Probability Model Analysis: (Use the model from CRGIS to determine portions of the project area that were located within each sensitivity tier and list all testing methods used within each tier. If more than one method was used, estimate the percentage of the tier tested by each method. In the Sites Located section, include Isolated Finds for which a number is assigned.)

Sensitivity Tier	Area within this Tier	Percent of Total Project Area	Method(s) Used to test this tier (Use list from 5 above. Include % if multiple.)	Number of Sites Located
High	28,908 sq. m.	73 %	Shovel testing	0
Moderate	9,900 sq. m.	25 %	Shovel testing	0
Low	792 sq. m.	2 %	Shovel testing	0

8. Required Attachments:

☒ 7.5' USGS Quadrangle Map delineating APE / Project Area
☒ Project map showing testing strategy(ies)
☒ Testing strategy justification / predictive model
☒ Supporting photographs with descriptions of view and view direction
☐ Engineering / Project Plans if prepared
☐ Geomorphological Report if prepared
☒ Representative excavation profiles and descriptions

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Harper, John A.
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McHugh, William P.
1982 *A Comprehensive Report on a Cultural Resources Survey of Texas Eastern Transmission Corporation's Pipeline Rights-of-Way in Pennsylvania*. Prepared by GAI Consultants, Incorporated, Monroeville, Pennsylvania for Texas Eastern Transmission Corporation, Houston Texas. PA SHPO ER # 1981-0119-042.

Mitchum, Beverly
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Pomeroy, A.
1867 *Atlas of Westmoreland County, Pennsylvania: from actual surveys and under the direction of S. N. & D. G. Beers*. A. Pomeroy, Philadelphia. Electronic document, http://www.usgwarchives.net/maps/pa/county/westmo/1867/, accessed October 28, 2019.

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n.d. *Conemaugh River Lake*. Electronic document, https://www.lrp.usace.army.mil/Missions/Recreation/Lakes/Conemaugh-River-Lake/, accessed October 28, 2019.

United States Geological Survey (USGS)
1902 Latrobe 7.5" Topographic Quadrangle Map. Reston, Virginia, 1946.

1964 Blairsville 7.5" Topographic Quadrangle Map. Reston, Virginia, 1972.

Attachment A
Figures

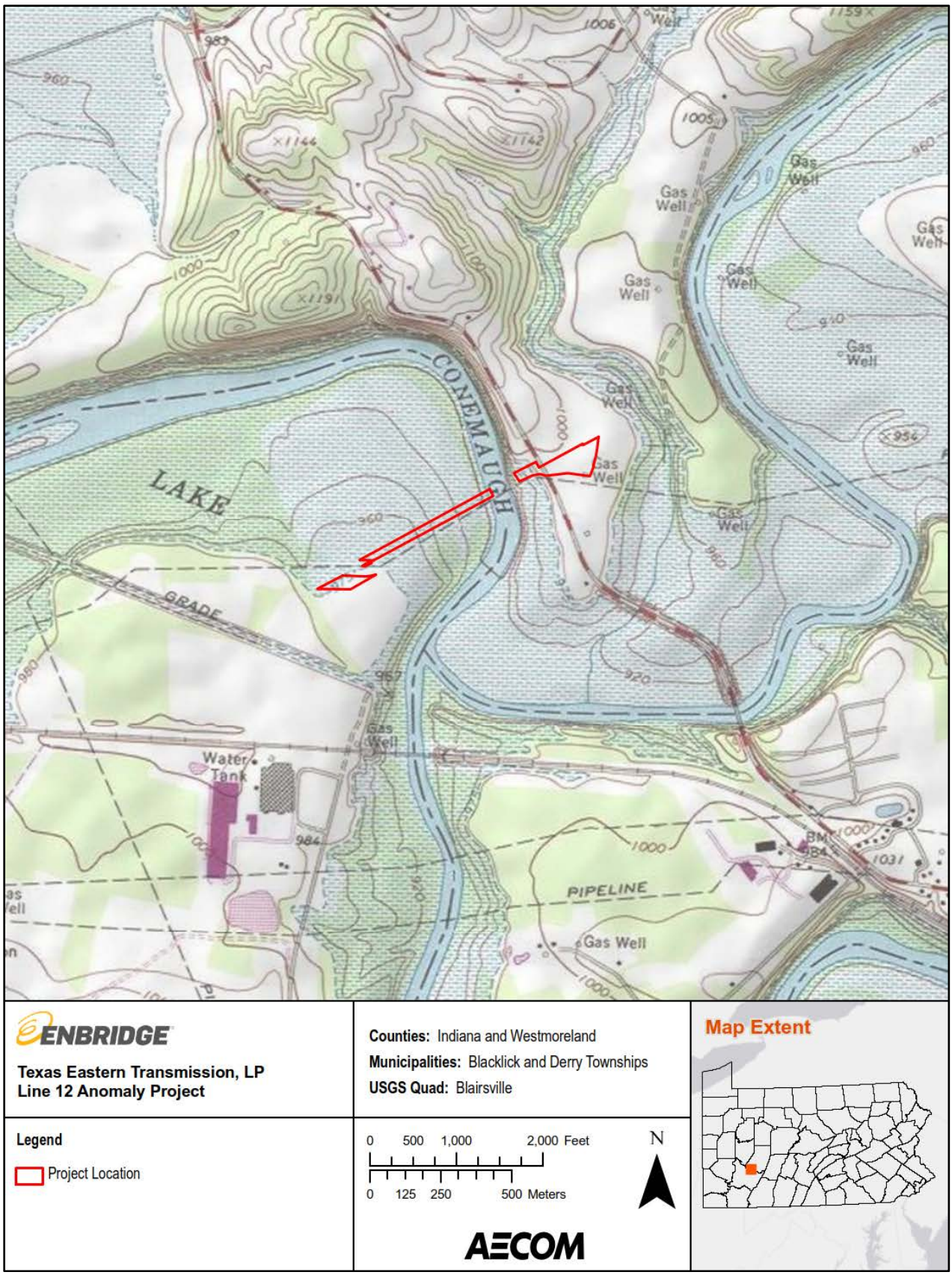


Figure 1: Project location.

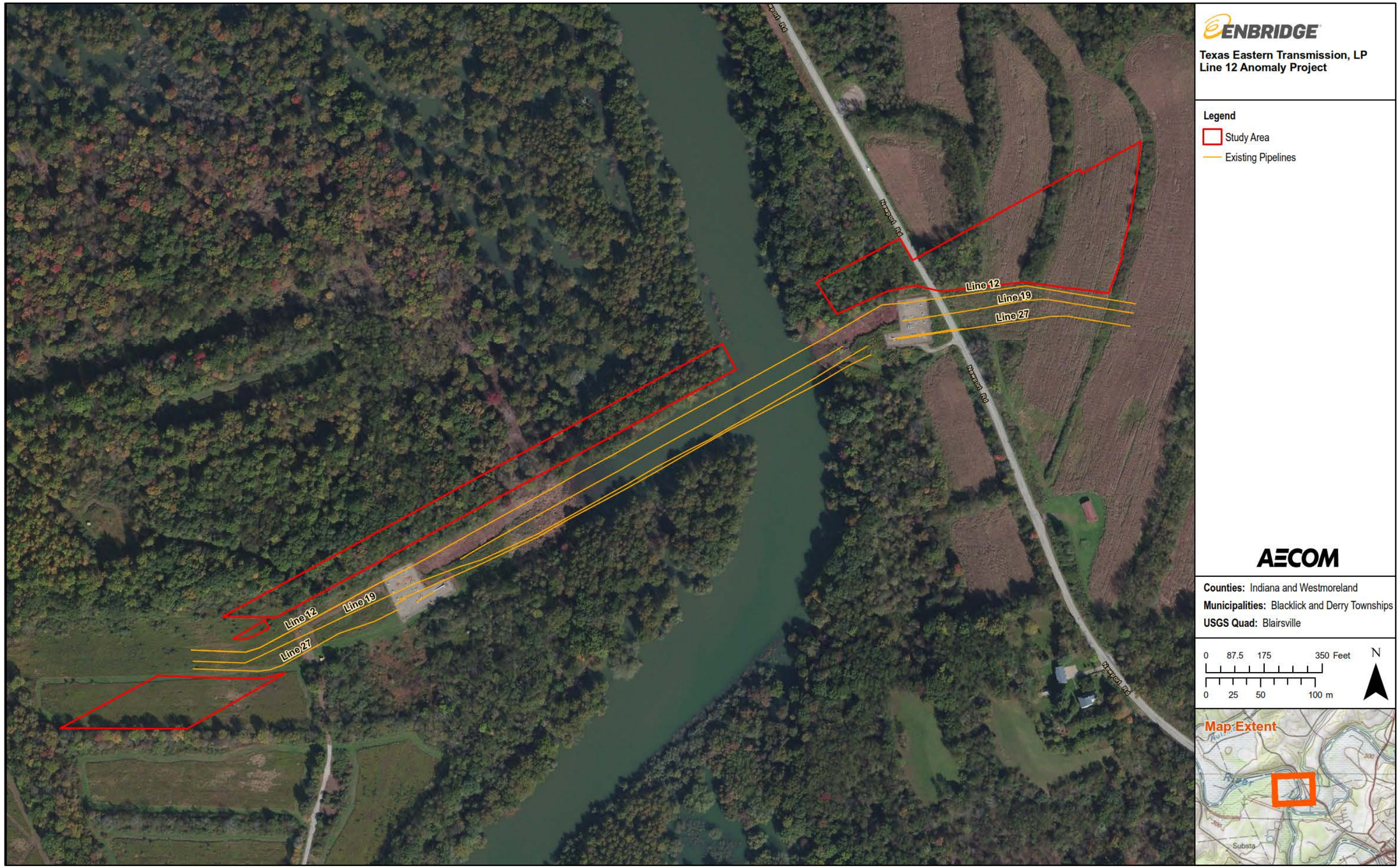


Figure 2: Aerial view of Study Area and existing pipelines.

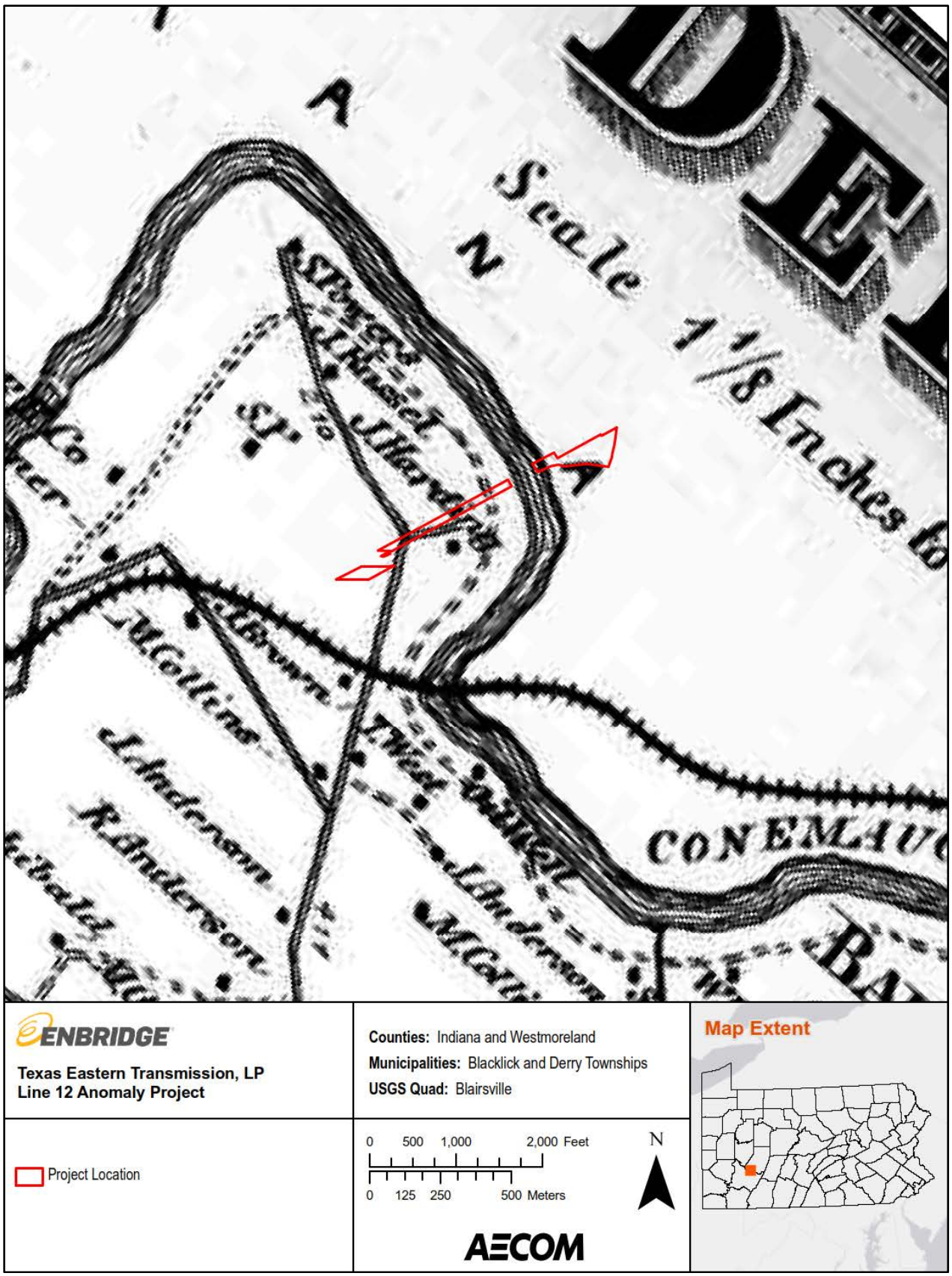
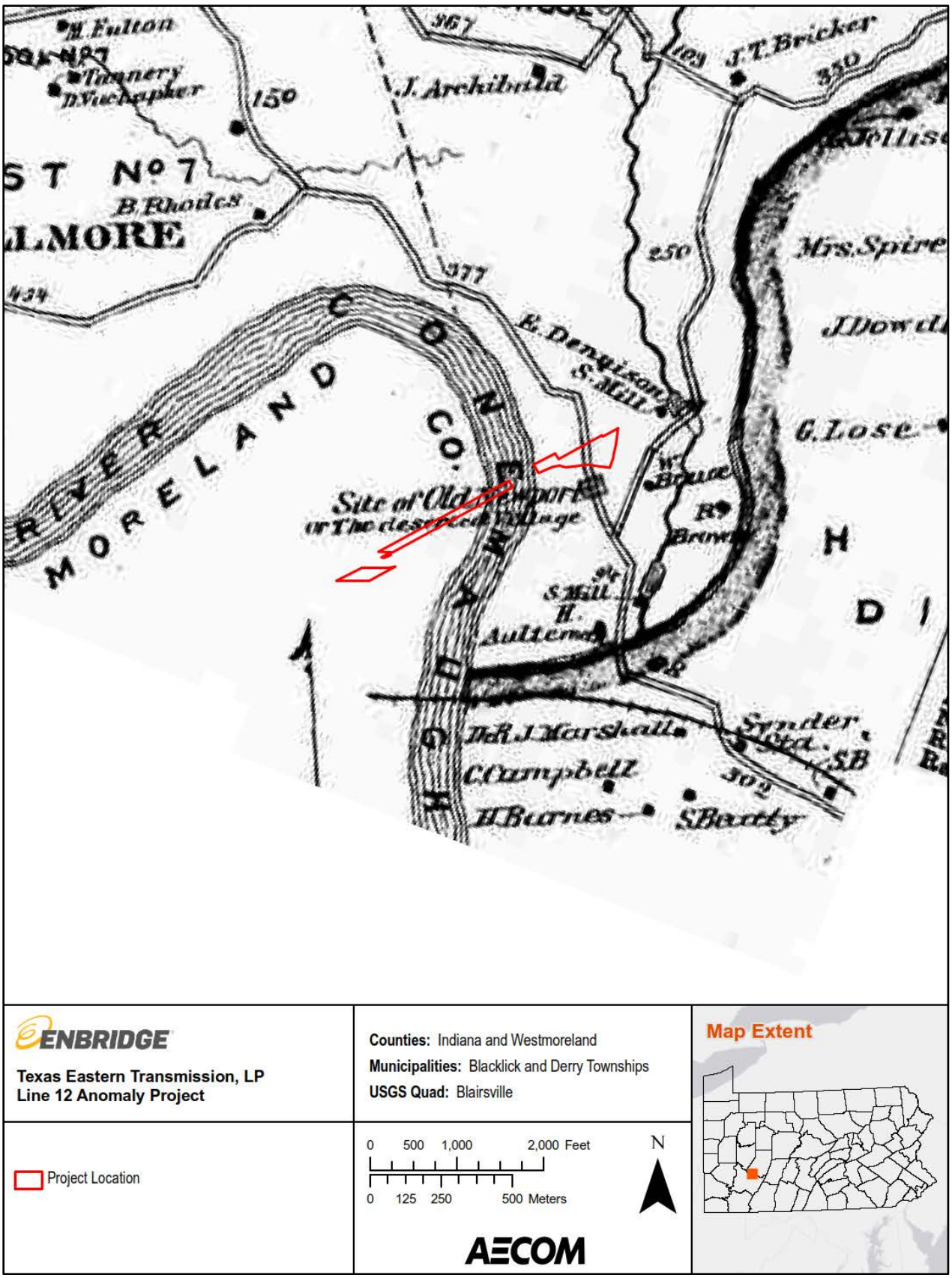


Figure 3: Approximate location of Study Area in 1867 (Pomeroy 1867)



ENBRIDGE

Texas Eastern Transmission, LP
Line 12 Anomaly Project

Counties: Indiana and Westmoreland
Municipalities: Blacklick and Derry Townships
USGS Quad: Blairsville

Map Extent

Project Location

0 500 1,000 2,000 Feet
0 125 250 500 Meters

N

AECOM

Figure 4: Approximate location of Study Area in 1871 (Beers 1871).

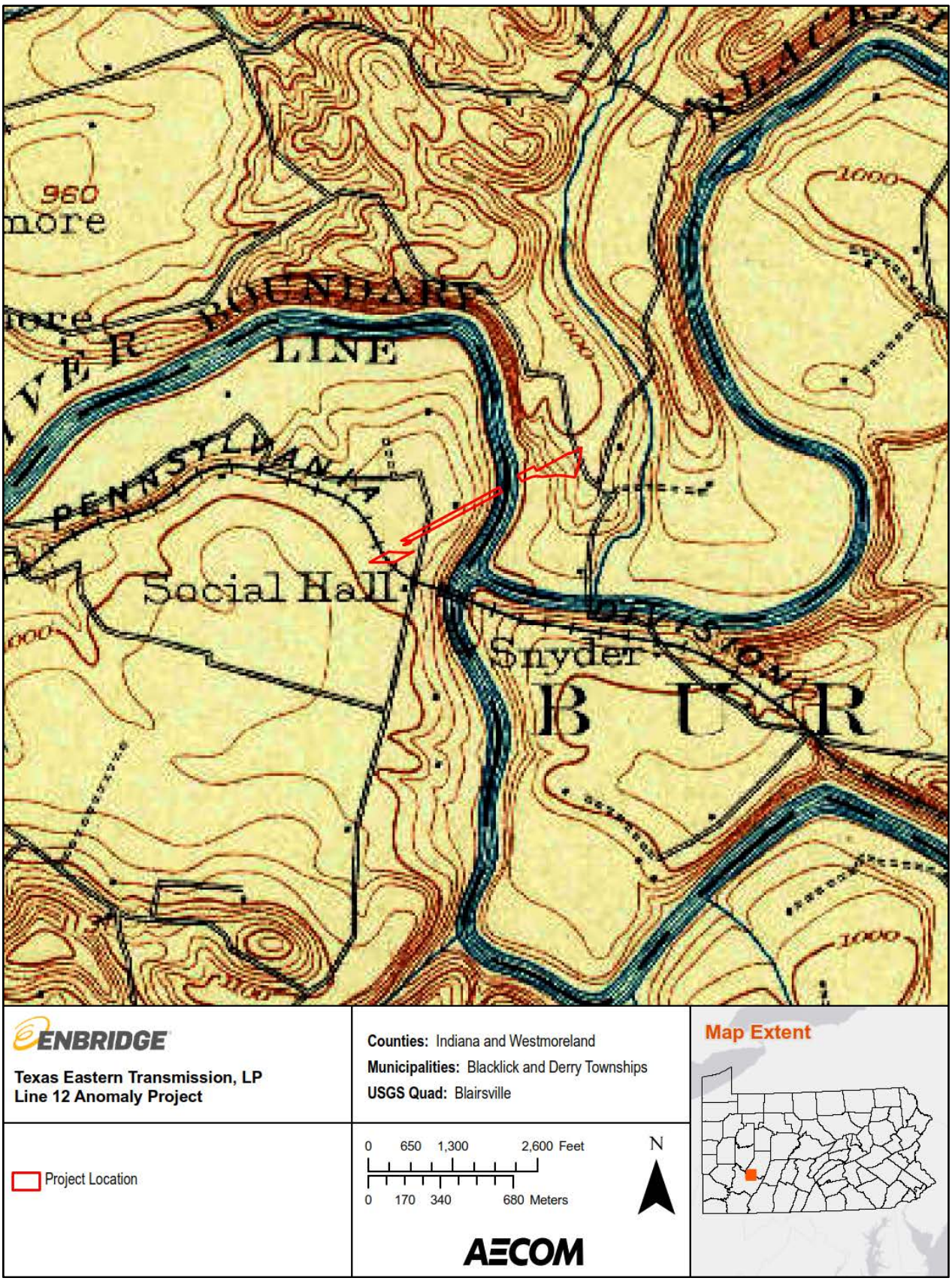


Figure 5: Location of Study Area in 1903 (USGS 1903).

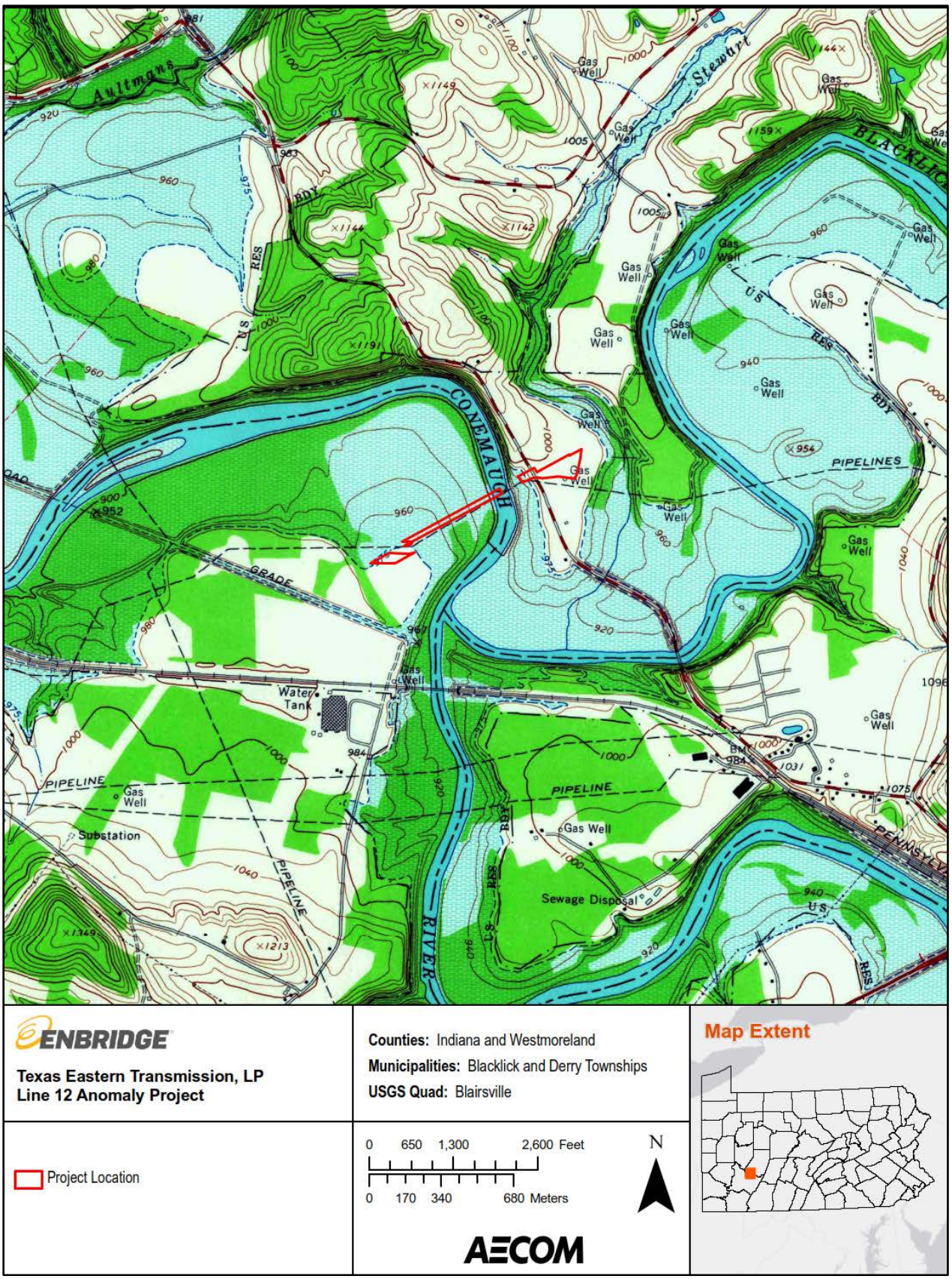


Figure 6: Location of Study Area in 1964 (USGS 1964).

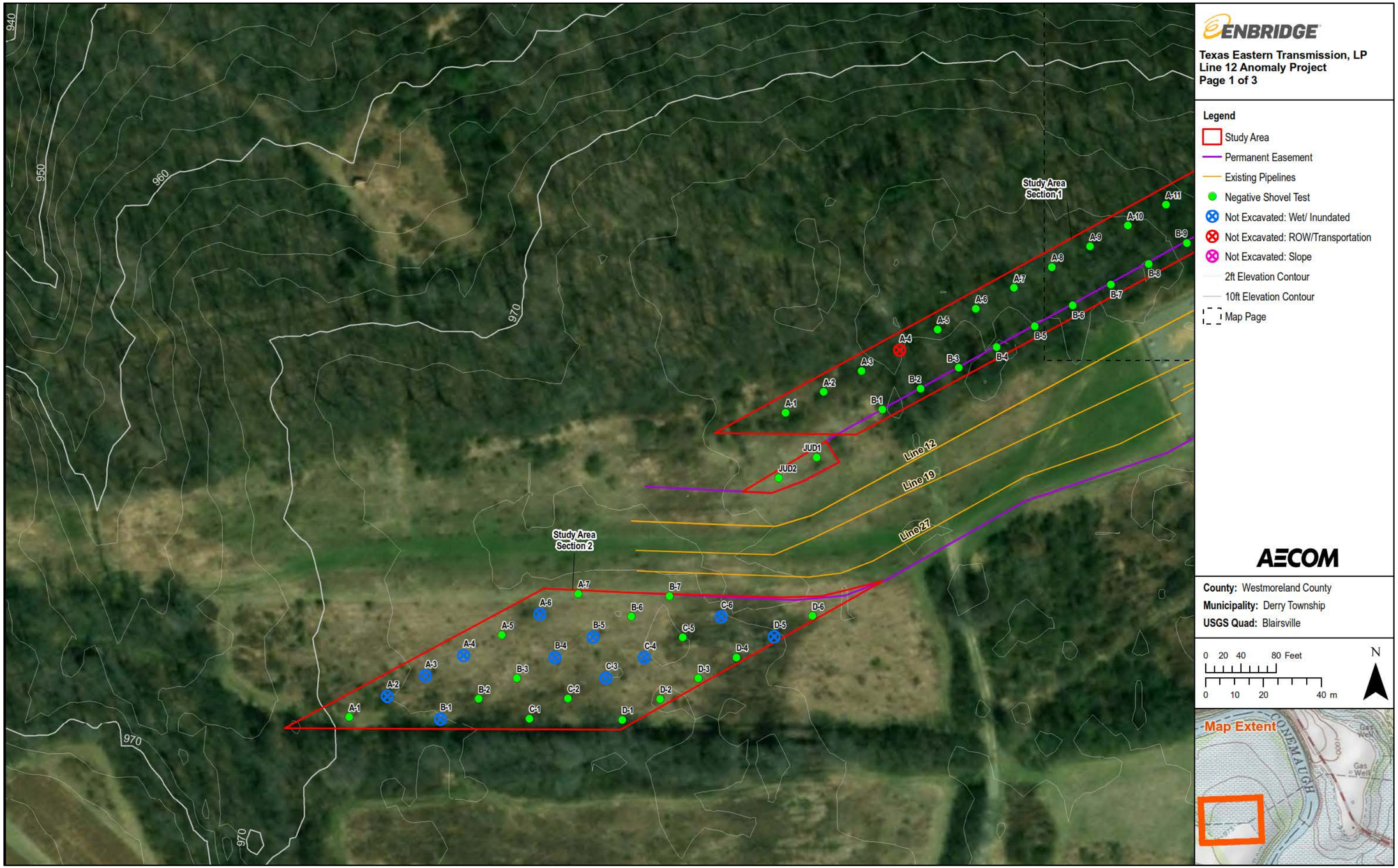


Figure 7a: Survey coverage map, Section 1.

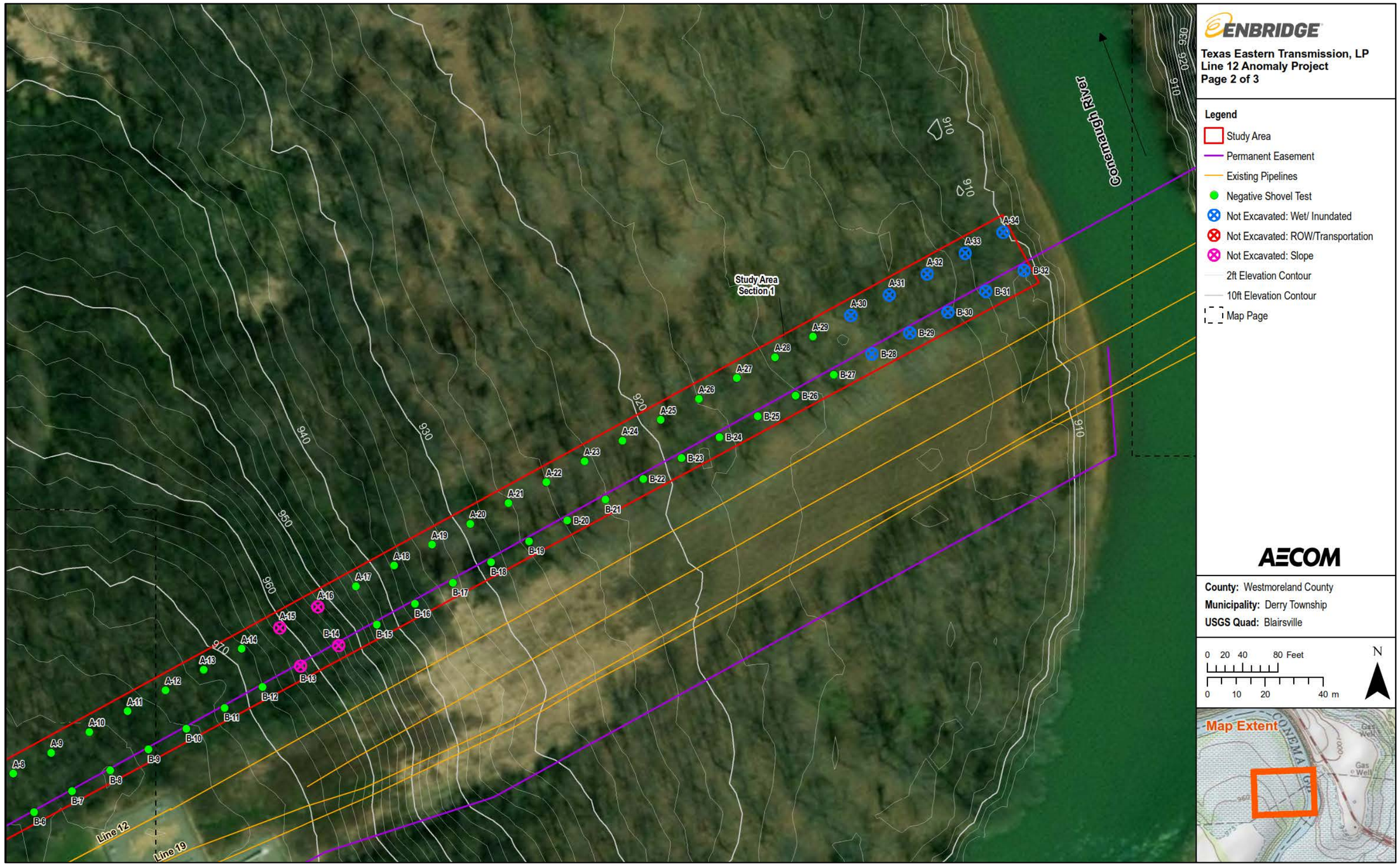


Figure 7b: Survey coverage map, Section 1.

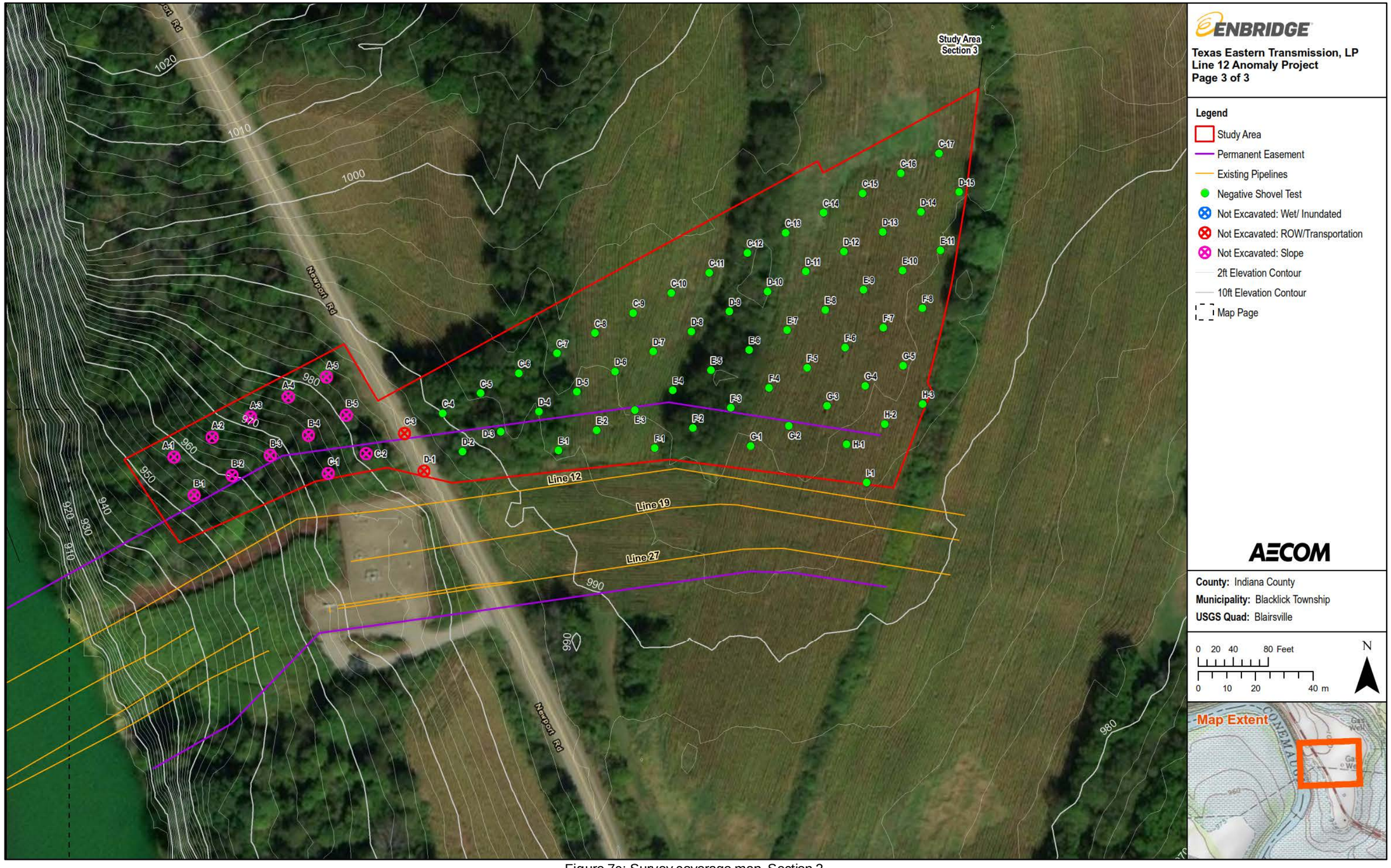


Figure 7c: Survey coverage map, Section 2.

STP A7

0.00 – 0.15m **Stratum I-** Brown (10YR 4/3) weak granular silt loam with less than five percent pebbles (Ap horizon).

0.15– 0.25m **Stratum II-** Brownish yellow (10YR 6/6) strong subangular blocky silty clay loam with less than five percent pebbles (Bt horizon).

STP D3

0.00 – 0.31 m **Stratum I -** Dark brown (10YR 3/3) weak silt loam with iron oxide (Ap horizon).

0.31 – 0.41 m **Stratum II -** Light yellowish brown (10YR 6/4) silty clay loam (B horizon)

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Texas Eastern Transmission, LP

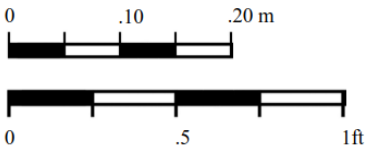
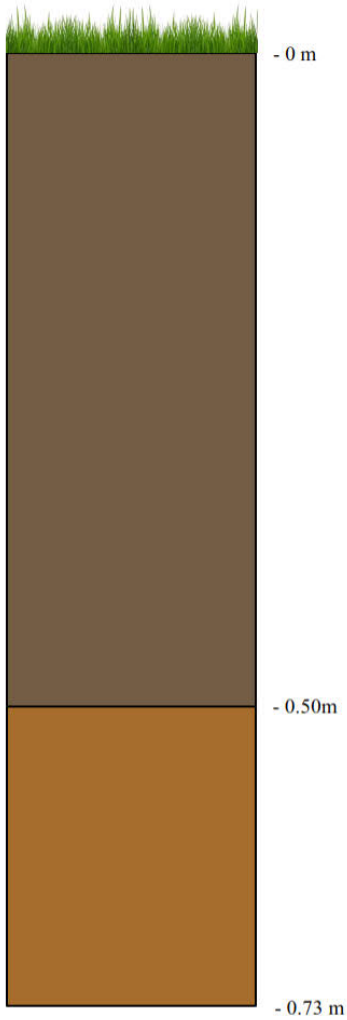
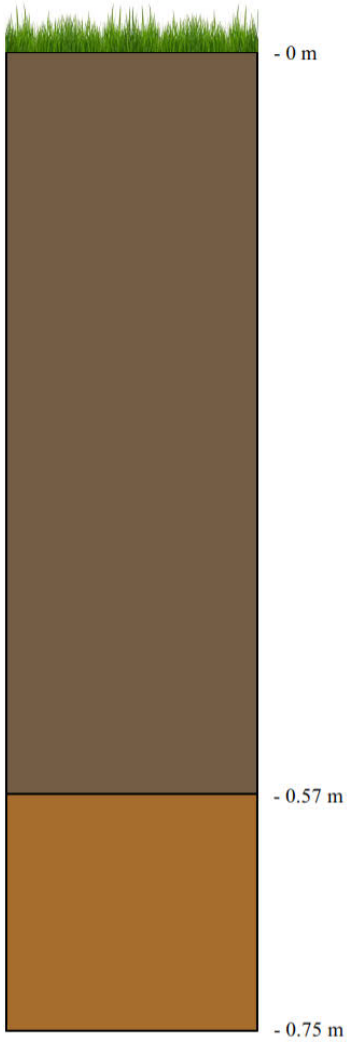


Figure 8a: Representative STP profiles, Section 1, high terrace.





STP B19

0.00 – 0.50m	**Stratum I-** Brown (10YR 4/3) structureless silt loam (AC horizon).
0.50– 0.73m	**Stratum II-** Strong brown (7.5YR 5/8) weak subangular blocky silty clay loam (Bw horizon). Cobbles at 0.73m.

STP B20

0.00 – 0.57m	**Stratum I-** Brown (10YR 4/3) structureless silt loam (AC horizon).
0.57– 0.75m	**Stratum II-** Strong brown (7.5YR 5/8) weak subangular blocky silty clay loam (Bw horizon).

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Texas Eastern Transmission, LP

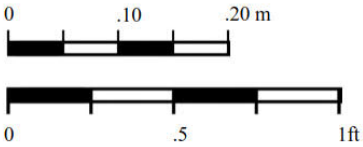
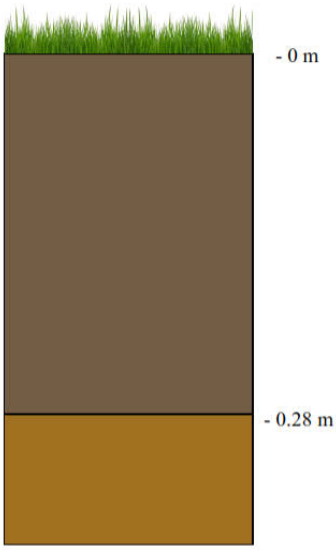
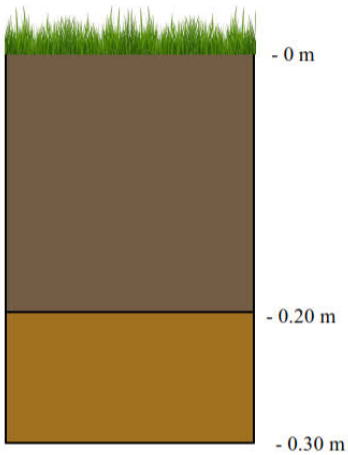


Figure 8b: Representative STP profiles, Section 1, floodplain.





STP F5

0.00 – 0.28m	**Stratum I-** Brown (10YR 4/3) weak granular silt loam with less than five percent pebble (Ap horizon).
0.28 – 0.38m	**Stratum II-** Yellowish brown (10YR 5/8) strong subangular blocky silty clay loam with less than five percent pebbles (Bt horizon).

STP C5

0.00 – 0.20m	**Stratum I-** Brown (10YR 4/3) weak granular silt loam with less than five percent pebbles (Ap horizon).
0.20– 0.30m	**Stratum II-** Yellowish brown (10YR 5/8) strong subangular blocky silty clay loam with less than five percent pebbles (Bt horizon).

ENBRIDGE
Texas Eastern Transmission, LP

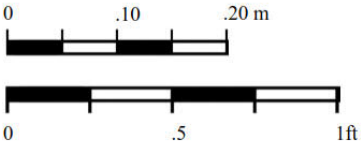


Figure 8c: Representative STP profiles, Section 2, high terrace.

Photograph 1: High terrace in Section 1 facing southwest from STP A14.

Photograph 2: Section 1, floodplain facing southwest from STP A24.

Photograph 3: Section 1, floodplain facing northeast from STP B22. Note flooding from Conemaugh River.

Photograph 4: Section 1, wetland on high terrace facing west from STP D6.

Photograph 5: Section 1, standing water within wetland facing southwest from STP D5.

Photograph 6: Section 2, Edge of high terrace facing southwest from ROW.

Photograph 7. Section 2, agricultural field facing west from STP E8.

Attachment C
Testing Strategy Justification

Negative Survey Form

The PA SHPO's Statewide Pre-Contact Probability Model (Model) ranks the Study Area as a combination of high and medium probability areas. Model-designated high probability areas are depicted on the high terraces on both sides of the Conemaugh River as well as on the floodplain on the west side of the river. River-proximal portions of the floodplain are ranked as possessing a moderate probability for Native American sites. The Model generally conforms to non-statistical models of Native American site locations in western Pennsylvania. Due to close proximity of recorded Native American archaeological sites, as well as the purported location of historic Newport village, the Study area was tested at 15-meter (49.2-foot intervals). STPs were not excavated on slopes exceeding 15 percent or in flooded areas.

May 6, 2020

Janna Napoli
Senior Archaeologist
AECOM
681Andersen Drive, Suite 400
Pittsburgh, PA 15220

Re: ER 2020-0684-042-B; FERC: Archaeological Negative Survey Form, Phase I Archaeological Survey, Line 12 Anomaly Project, Westmoreland and Indiana Counties, Pennsylvania

Dear Ms. Napoli,

Thank you for submitting additional information concerning the above referenced project. The Pennsylvania State Historic Preservation Office (PA SHPO) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

This report meets our standards and specifications as outlined in Guidelines for Archaeological Investigations in Pennsylvania (SHPO 2017) and the Secretary of the Interior's Guidelines for Archaeological Documentation. We agree with the recommendations of this report and, in our opinion, no further archaeological work is necessary for this project.

If you need further information concerning archaeological issues, please consult Casey Hanson at chanson@pa.gov or (717) 772-0923.

Sincerely,

Douglas C. McLearen, Chief
Division of Environmental Review

TEXAS EASTERN TRANSMISSION, LP
Attn.: Sabrina Hepburn
890 Winter Street, Suite 300
Waltham, MA 02451

617-560-1424

Spectra Energy Partners

October 26, 2015

RECEIVED ON
OCT 30 '15
BUREAU FOR
HISTORIC PRESERVATION

Serena Bellew
Deputy State Historic Preservation Officer
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, Second Floor
400 North Street
Harrisburg, Pennsylvania 17120-0093

Re: Texas Eastern Transmission, LP
Historic and Archaeological Categorical Exclusion Agreement for Pipeline Construction/Maintenance Activities in Pennsylvania
Pennsylvania SHPO ER #2003-0548-042-H

Dear Ms. Bellew:

Texas Eastern Transmission, LP (Texas Eastern), a wholly-owned subsidiary of Spectra Energy Partners, LP, is requesting a categorical exclusion renewal for a five (5) year period extending from January 1, 2016 through December 31, 2020 for pipeline construction and maintenance activities in Pennsylvania. Enclosed please find a copy of the current agreement which expires at the end of this year, along with a consultation agreement with similar language to that included in the previous agreement. If you concur with this request, please sign and date the enclosed agreement and return it to the following address:

Texas Eastern Transmission, LP
Attn.: Sabrina Hepburn
890 Winter Street, Suite 300
Waltham, MA 02451

All written correspondence should be directed to the above address. Texas Eastern believes that this agreement will continue to facilitate Texas Eastern's operations in Pennsylvania while still protecting potentially significant cultural resources.

If you have any questions or require additional information, please do not hesitate to contact Gregory R. Dubell at 401-575-0624 or gdubell@palinc.com. We appreciate your time and attention to this matter.

Sincerely,

Sabrina Hepburn

Sabrina Hepburn
Supervisor
Environmental Construction Permitting

Enclosures

HISTORIC AND ARCHAEOLOGICAL REVIEW PROCEDURES FOR PROJECTS IN PENNSYLVANIA – JANUARY 1, 2016 THROUGH DECEMBER 31, 2020

TEXAS EASTERN TRANSMISSION, LP

1. Where the Texas Eastern Transmission, LP (Texas Eastern) right-of-way (ROW) is maintained (i.e., periodic mowing) and has been previously disturbed by the original installation, then, for the following types of projects, there will be no contact with the Pennsylvania Historical and Museum Commission – Bureau for Historic Preservation, the office of the State Historic Preservation Officer (SHPO):

    a. construction and other activities on existing ROW, including the installation and maintenance, relocation, replacement, or abandonment and removal of receipt and delivery taps, meters, regulators, valves, pipe, points of delivery (POD), and other auxiliary pipeline facilities, as well as investigatory activities within existing, previously disturbed ROW;
    b. construction maintenance, relocation, replacement and/or abandonment projects within existing, previously-disturbed, and generally fenced compressor and metering and regulating (M&R) stations, yards and gas processing plants, and the installation of field compressors or dehydrators on an existing ROW;
    c. use of existing access roads and existing ROW as access to all construction and/or maintenance projects including minor maintenance or upgrades such as adding gravel, re-grading, and side trimming (pruning) of trees; and
    d. the acquisition of existing facilities by lease or purchase (no new ROW required).

2. A transmittal letter is required to serve as documentation of consultation with the Pennsylvania SHPO for projects not in the categories described in Stipulation 1:

    a. Texas Eastern will provide the Pennsylvania SHPO with a project description, a project map, a summary of its cultural resources review, and any other material helpful to the SHPO in making its recommendations for the project.

3. For projects located on Federal lands, the land managing agency or lead federal agency will be consulted.

Identification of Historic Properties

For construction and maintenance activities beyond the horizontal and vertical limits of prior ground disturbance, Texas Eastern will put forth an adequate effort to identify historic properties within the area of potential effect and begin consultation with the Pennsylvania SHPO as required under Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800). Additionally, in the event of an unanticipated discovery, the attached Unanticipated Discovery Plan will be followed.

Termination of This Agreement

This Agreement shall be in effect for five (5) years, extending from January 1, 2016 through December 31, 2020. At the written request of either party, this Agreement may be reviewed for possible modification at any time.

Reporting

Texas Eastern will provide the Pennsylvania SHPO a summary of all the projects completed under this agreement on an annual basis, including USGS quadrangle maps showing the location(s) of all projects identified in the summary report. This report shall be submitted by January 31st for each year during the five (5) year agreement.

Sabrina Hepburn 10/26/2015

Sabrina Hepburn Date
Supervisor, Environmental Construction Permitting
Texas Eastern Transmission, LP

Nov 9, 2015

Serena Bellew Date
Deputy State Historic Preservation Officer
Pennsylvania SHPO

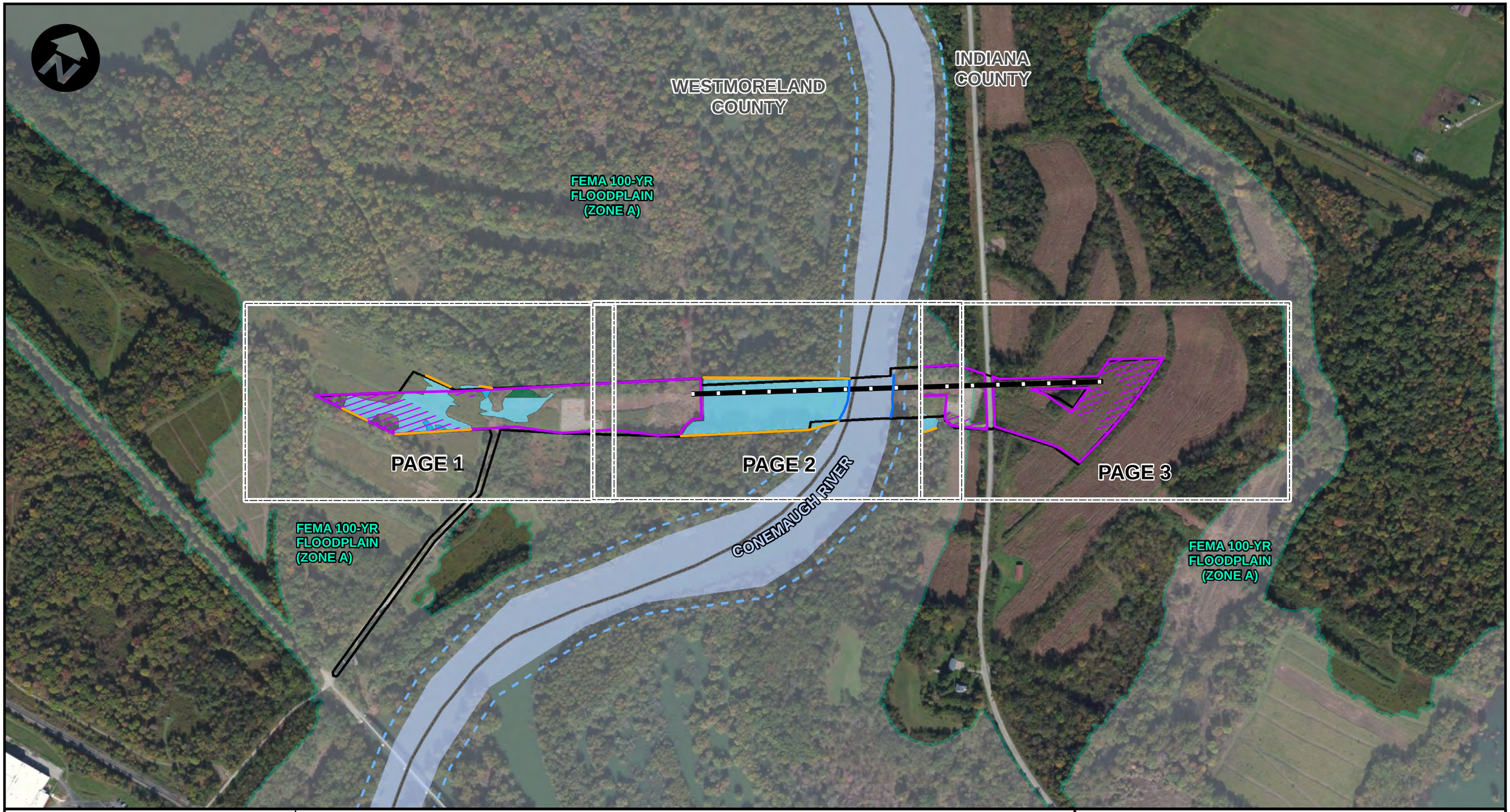
Requirement H

Plans

SITE PLAN, CROSS SECTIONAL, AND PROFILE DRAWINGS

This section includes a Construction Alignment Plan providing an overview of the Project and cross-sectional drawing of the proposed pipeline replacement, as well as a Site Plan providing the limits of and impacts to all regulated waters, wetland cover types, river, floodway, and floodplain. The Federal Emergency Management Agency (FEMA) delineated a large 100-year floodplain in this area that covers the entire Project area on the west side of the Conemaugh River and a portion of the Project area on the east side. FEMA did not delineate a floodway at this location, so a 50-foot floodway has been assumed and is shown on both sides of the river, however wetland W-CMS-016 extends to the west bank of the river and so supersedes the floodway.

Texas Eastern intends to implement sediment and erosion controls to protect regulated waters. The extents of wetland W-BJM-010 and W-BLM-011 within workspace limits will be overlaid with timber mats to provide a stable working surface during construction. Compost filter sock will be installed at the workspace limits where those wetlands extend outside of the workspace. Wetland W-CMS-016 will not be impacted by construction, other than the HDD bore under the wetland; silt fence will be installed ten feet from the wetland limit, at the workspace boundary, to protect the wetland. On the east side of the Conemaugh River, silt fence will be installed at the workspace limits to protect wetland W-CMS-007 and the floodway and banks of the Conemaugh River. Wetland W-CMS-007 and the Conemaugh River will not be impacted during construction, other than the HDD bore under the river. Detailed plans showing erosion and sediment controls are provided in Requirement M.



BASE MAP SOURCES:
AERIAL IMAGERY: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

NWI WETLAND: USFWS, NATIONAL WETLANDS INVENTORY FOR PA, POLYGON, 10/15/2018

SOIL MAP UNIT: USDA-NRCS, SOIL SURVEY GEOGRAPHIC DATABASE FOR WESTMORELAND AND INDIANA COUNTIES, PA, 9/2018

LEGEND

- PROPOSED LOD
- PROPOSED TEMP. WORK SPACE
- STUDY AREA
- PROPOSED HDD
- PEM WETLAND
- PSS WETLAND
- PFO WETLAND
- OPEN-ENDED WETLAND
- WATERCOURSE
- ASSUMED 50-FT FLOODWAY
- FEMA 100-YR FLOODPLAIN
- PAGE BOUNDARY
- COUNTY BOUNDARY

0 250 500 1,000 1,500 2,000 Feet

ENBRIDGE

FIGURE 2
SITE PLAN

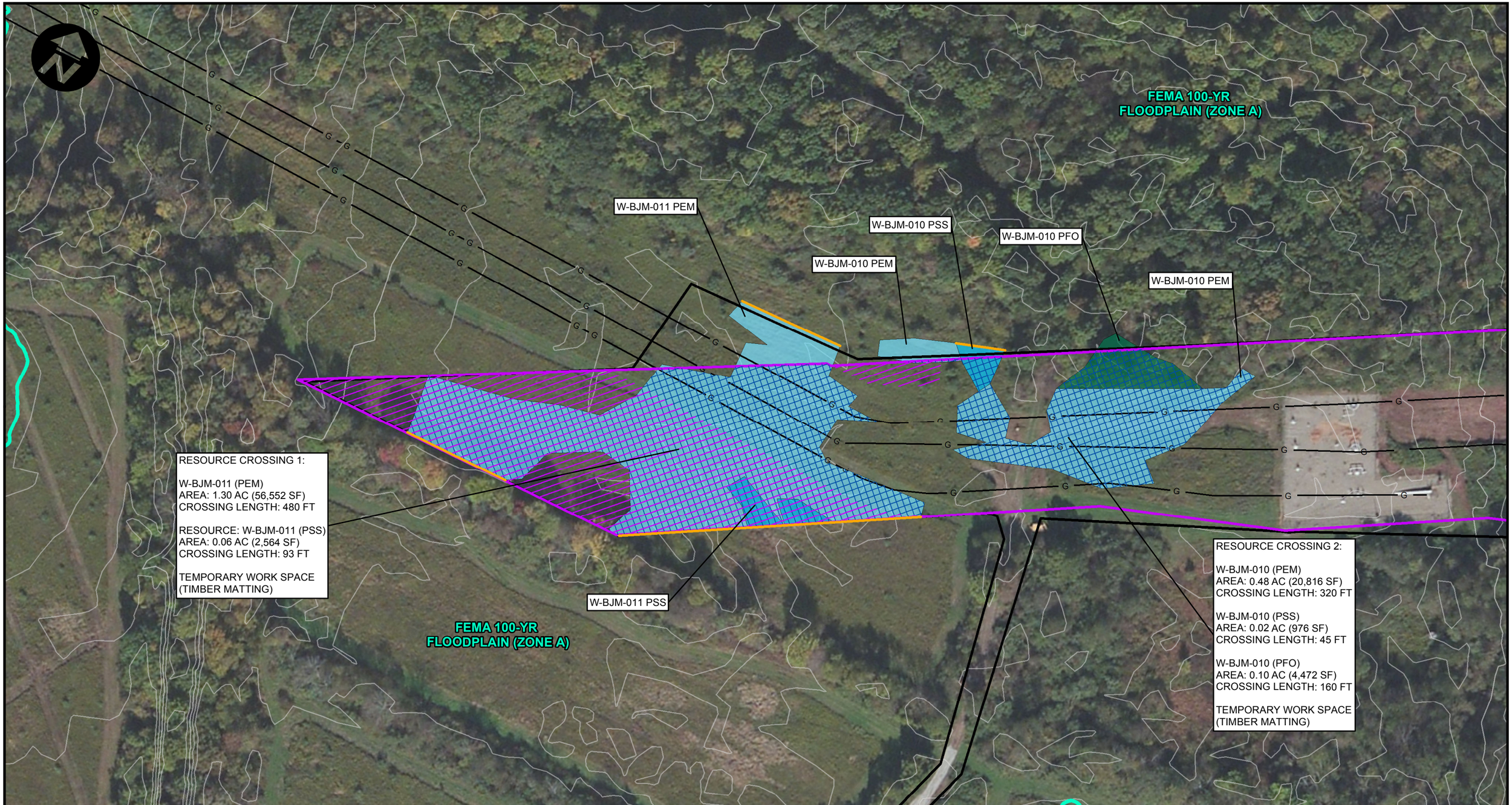
AECOM

CONEMAUGH RIVER PROJECT

40° 27' 21.15" N AND 79° 17' 57.81" W

BLACKLICK TOWNSHIP, INDIANA COUNTY
AND DERRY TOWNSHIP, WESTMORELAND COUNTY, PA

Prepared by: MLN	CHECKED BY: SLH	DATE: 7/22/2020	PAGE INDEX



BASE MAP SOURCES:
AERIAL IMAGERY: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS
SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

NWI WETLAND: USFWS, NATIONAL WETLANDS INVENTORY FOR PA, POLYGON, 10/15/2018

SOIL MAP UNIT: USDA-NRCS, SOIL SURVEY GEOGRAPHIC DATABASE FOR WESTMORELAND AND INDIANA COUNTIES, PA, 9/2018

LEGEND

- PROPOSED LOD
- PROPOSED TEMP. WORK SPACE
- STUDY AREA
- PROPOSED HDD
- EXISTING TETLP PIPELINE
- PEM WETLAND
- PSS WETLAND
- PFO WETLAND
- OPEN-ENDED WETLAND
- WATERCOURSE
- WETLAND IMPACT (ROW)
- WETLAND IMPACT (HDD)
- STREAM IMPACT (HDD)
- FLOODWAY IMPACT (HDD)
- COUNTY BOUNDARY
- FEMA 100-YR FLOODPLAIN
- ASSUMED 50-FT FLOODWAY

0 50 100 200 Feet

ENBRIDGE

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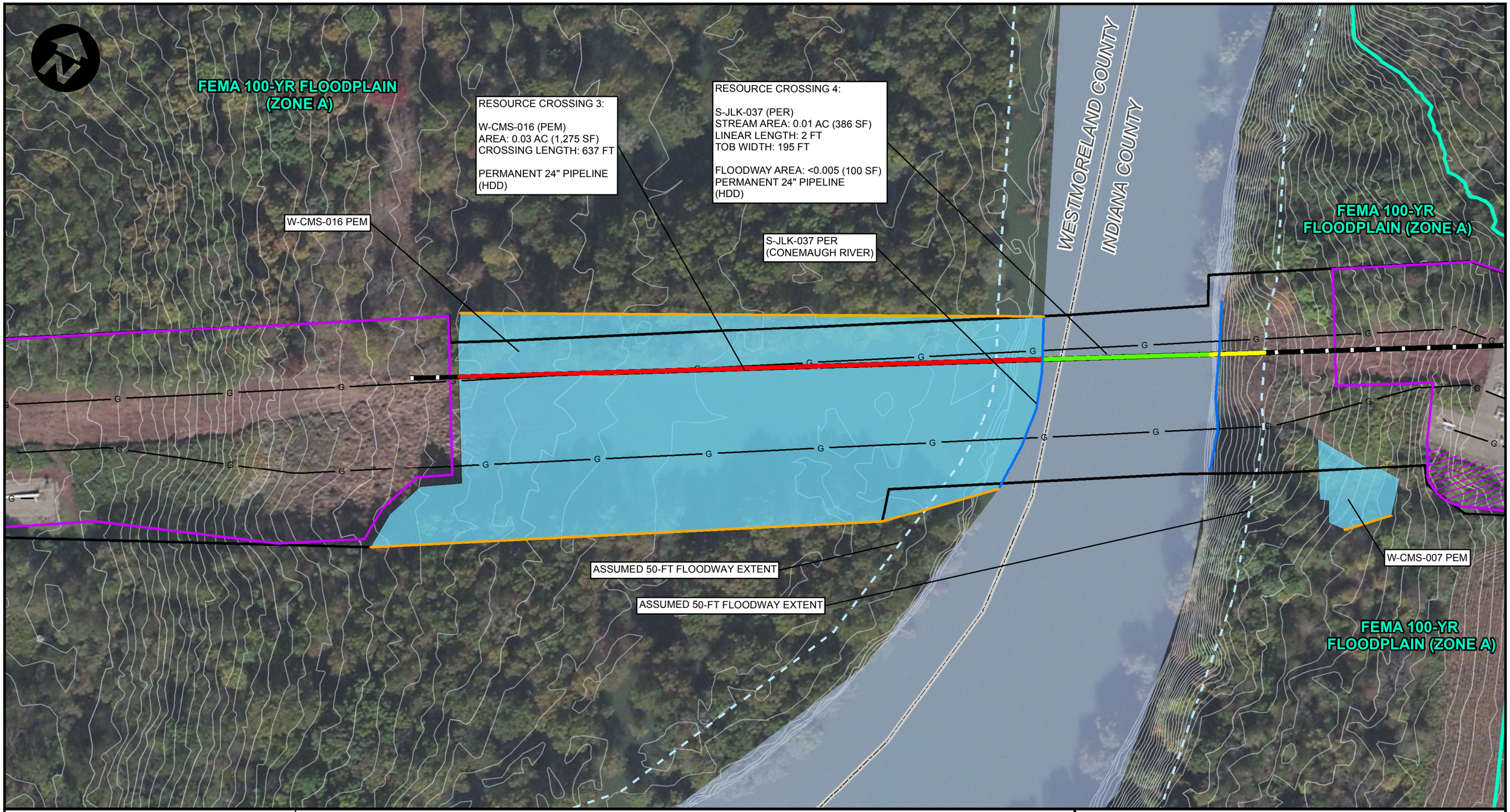
Prepared by: MLN	CHECKED BY: SLH	DATE: 7/14/2020	PAGE 1 OF 3



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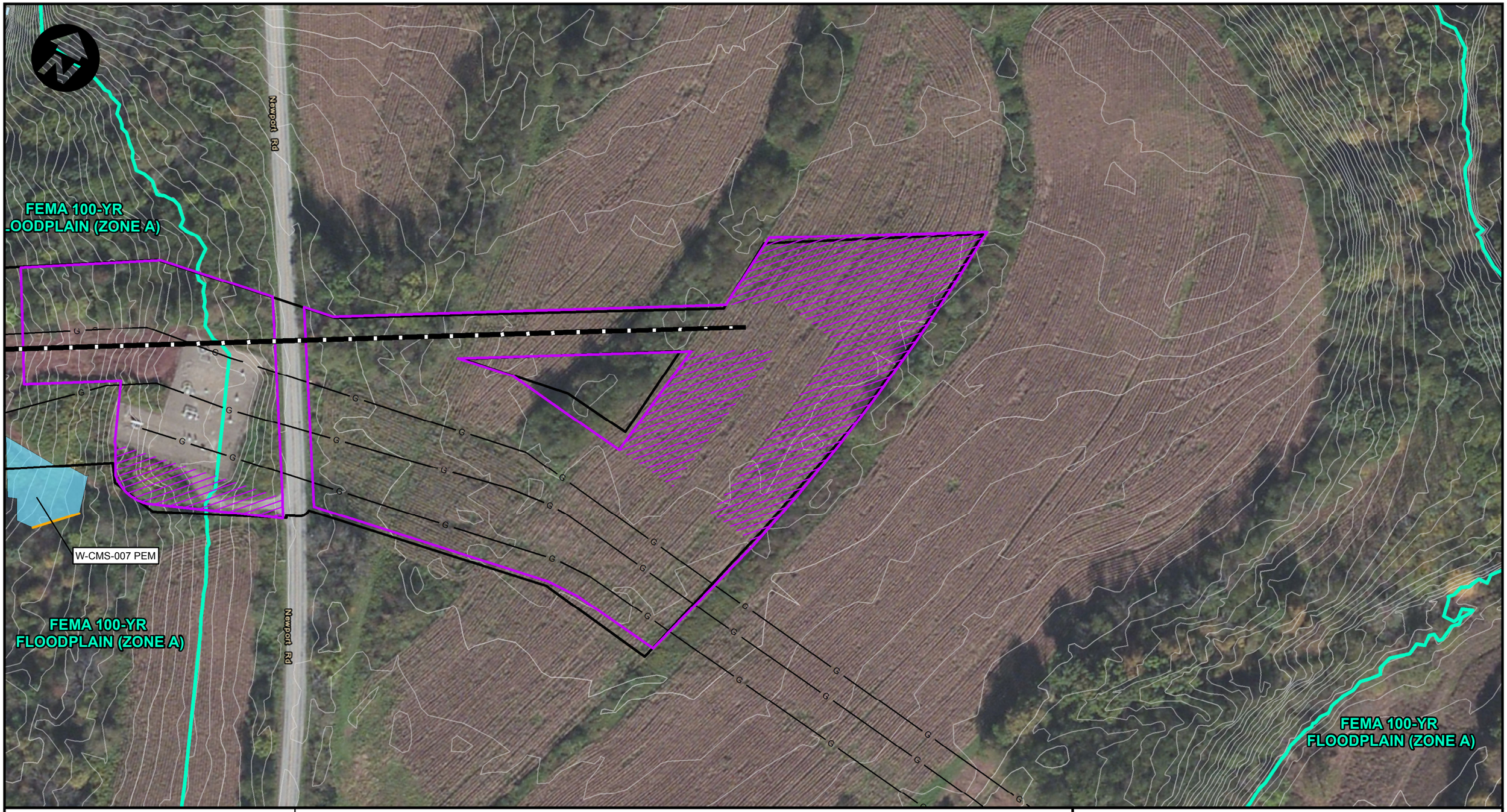

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Prepared by: MLN	CHECKED BY: SLH	DATE: 7/14/2020	PAGE 3 OF 3

Requirement J

Project Narrative and Aquatic Resource Impact Table

PROJECT NARRATIVE

Introduction

Texas Eastern Transmission, LP (Texas Eastern) proposes to replace a section of their existing Line 12 natural gas pipeline beneath the Conemaugh River in Derry Township, Westmoreland County and Blacklick Township, Indiana County, Pennsylvania. Activities associated with the installation of this pipeline are referred to herein as the Conemaugh River Crossing Project (Project). Portions of this proposed repair work are regulated by the Pennsylvania Department of Environmental Protection (PADEP) and the United States Army Corps of Engineers (USACE) under the Dam Safety and Waterway Management Rules and Regulations, Title 25 Pennsylvania Code, Chapter 105 and Section 401/404 of the Clean Water Act. Accordingly, Texas Eastern is submitting this application for temporary and permanent impacts to wetlands, a river, and floodway that will occur as a result of Project activities. The following sections detail the existing site conditions, construction methodologies, and minimization and avoidance measures that will be implemented as part of the project.

Project Purpose and Need

Per the United States Department of Transportation (USDOT) regulations regarding pipeline safety (49 Code of Federal Regulations (CFR) Part 192 Subparts I and O), gas transmission pipeline operators are required to develop and implement a comprehensive corrosion control and integrity management program for pipeline segments where a failure would have the greatest impact on the public or property. The rule further requires that operators identify and characterize applicable threats to pipeline segments, conduct a baseline assessment and periodic reassessments of these segments, mitigate significant defects discovered from the assessments, and continually monitor the effectiveness of its integrity management program.

The USDOT Pipeline and Hazardous Materials Safety Administration (PHMSA), acting through the Office of Pipeline Safety, administers the national regulatory program to ensure the continued protection of the environment and public from the risks of hazardous materials transportation by establishing policy and enforcing rigorous operation and maintenance standards. Texas Eastern conducts regularly scheduled internal in line inspections (aka “tool runs”) of their natural gas pipeline transmission systems using advanced internal inspection tools commonly known as “pigs” or “smart pigs”. These internal pipeline tools are equipped with GPS tracking and sensors to measure and record pipe wall thickness as they pass through the pipe. Upon completion of a pipeline tool run, the data is analyzed by Texas Eastern’s integrity experts and given a repair classification based on the severity of the defect. Examples of these pipeline “anomalies” include pipe dents or evidence of metal loss from corrosion.

A tool run was completed in 2018 on Texas Eastern's 24-inch Line 12 pipeline system in Westmoreland County. As a result of these inspections, an anomaly was identified approximately 25 feet from the west bank of the Conemaugh River, within wetland W-CMS-016, that required investigation and repair to comply with PHMSA regulations. Under PHMSA regulations the existing Line 12 cannot operate unless the anomaly is repaired. Texas Eastern obtained a General Permit 11 (GP116518226) from PADEP to cross and excavate wetland W-CMS-016 and attempted to repair the anomaly during the construction season in 2018 and 2019. However, the Conemaugh River in this location is part of a USACE flood control area and frequently overflows its west bank into the existing pipeline right-of-way (ROW) and wetland W-CMS-016. Additionally, Line 12 is currently located approximately 30 feet below grade, likely due to silt deposits from frequent river flooding. These combined conditions made it impossible to keep the trench box dewatered sufficiently for safe anomaly repair. Texas Eastern explored several options to repair the anomaly and ultimately concluded that it would not be possible under current conditions.

With anomaly repair deemed infeasible and Line 12 inoperable Texas Eastern has been temporarily using their Line 19 Auxiliary (AUX) line to continue to meet gas service demands, however this pipeline is too small to continue use indefinitely. Based on studies conducted Texas Eastern has determined that the existing segment of Line 12 under the Conemaugh River should be abandoned in place and a new segment installed. Texas Eastern has chosen horizontal direction drilling (HDD) over an open-cut or conventional crossing of the Conemaugh River. HDD will require less wetland impacts by avoiding open cutting the large wetland on the west side of the river (W-CMS-016), as well as avoiding direct impacts to the Conemaugh River itself. The existing Line 12 will be replaced in-situ from the existing mainline valve (MLV) site on the west side of the Conemaugh River to the HDD entry point; it will then be capped and grouted from the HDD entry point to the existing MLV site on the east side of the Conemaugh River (see Alignment Sheet in Requirement H) . The trajectory of the HDD would be too steep to meet the existing MLV on the east side of the Conemaugh River, so the HDD must exit at a point past that MLV outside of the existing ROW easement; Texas Eastern is in the process of obtaining additional ROW easement from the USACE to accommodate the new pipeline. Texas Eastern must also install a new MLV and permanent access road 20 feet wide and approximately 375 feet long off Newport Road in order to access the new MLV site and conduct required internal inspections. The Line 12 MLV located in the existing MLV site on the west side of the Conemaugh River will be replaced with a new MLV to support pipeline operations. The Line 12 MLV located in the existing MLV site on the east side of the Conemaugh River will be removed and replaced with a flange connection. The existing Line 12 pipe under Newport Road will remain in service to connect the new MLV site east of Newport road to the existing pipeline crossover located at the MLV site east of the Conemaugh River.

Project Location

A United States Geological Survey (USGS) topographic quadrangle-based map (Blairsville Quadrangle) depicting the location of the Project is provided in Requirement I. The Project area has, with the exception of an agricultural area, been utilized as a utility corridor. The USACE is the primary landowner of the entire project area including an area of East side of the River that is leased to the PA Game Commission (PGC).

The Project is located mostly within existing maintained ROW on either side of the Conemaugh River, but will require some temporary workspace outside of the existing ROW as well as a small area of new permanent easement. There are currently four (4) high-pressure natural gas transmission pipelines in operation within the project ROW, the 24-inch Line 12, the 30-inch Line 19, the 16-inch Line 19-AUX and the 36-inch Line 27-AUX. Through periodic vegetation management, the ROW is maintained in a mixed herbaceous and shrub state. Immediately surrounding the ROW within the Project area are agricultural fields and forestland. Terrain along the ROW consists of flat to gradually sloping land on the west side of the river and steep sloping to flat land on the east side of the river. Two wetlands will be crossed via temporary structures for workspace to construct this Project.

Proposed Construction Activities

Construction activities will disturb both soil and ground cover to replace a portion of Line 12, install a new section of Line 12 in new permanent easement, and set up workspace for the HDD operation. The proposed Project will utilize the extent of Texas Eastern's existing ROW on the western and eastern sides, as well as additional workspace outside of the existing easement in order to provide adequate room for the HDD operation. The Project will also require new permanent easement to accommodate the new Line 12 segment on the eastern end. The total disturbed area for this project, including temporary workspace outside the existing easement and new permanent easement, will be approximately 12.23 acres. These disturbances will be temporary with the exception of a new 20-foot wide and 375-foot long permanent access road and MLV. Disturbed areas will be immediately stabilized, seeded and mulched following completion of construction activities. The following construction activities will occur as a result of the proposed project. Additional information on the construction process is provided in the Erosion and Sediment Control Plan (E&SCP) drawings provided in Requirement M.

ROW Workspace Preparation

Before the start of construction, utilities will be identified, land surveys will be finalized, and the pipeline centerline and construction workspace will be surveyed and marked. Texas Eastern's contractors will contact the "PA One Call System" to verify and mark all utilities along the construction workspace to minimize the potential for damage to other buried facilities in the area. Where there is a question as to the location of utilities, they will be located by field instrumentation and test pits. The USACE will be notified at least 3 to 5 days before the start of construction.

The construction workspace will be located mostly within the cleared and maintained ROW, though temporary workspace outside of the ROW are mostly maintained as field. Texas Eastern has not maintained the full extent of their existing easement on the northern side of the ROW and to provide adequate room for the HDD operations, limited tree trimming, and clearing will be conducted. Within wetland areas a total of 26 trees that meet the regulatory classification of trees will need to be removed, these trees will be cut with the stumps left intact. Twelve of the trees that need to be removed are located in a Palustrine Forested (PFO) wetland within the limits of Texas Eastern's existing easement, which will be maintained following construction resulting in approximately 0.10 acres of permanent wetland conversion. The Palustrine Scrub-shrub (PSS) of the same wetland will also be maintained in an emergent state following construction resulting in approximately 0.02 acres of permanent wetland conversion. To mitigate for the wetland conversion, Texas Eastern intends to purchase off-site mitigation credits. Further information concerning mitigation is provided in Requirement T. The remainder of trees to be removed are in the HDD pullback area outside of the existing easement, this workspace is required to complete construction operations and will be restored following construction and allowed to regenerate. The trees that will be cut in the HDD pullback area are located within wetland W-BJM-011, classified as Palustrine Emergent (PEM) and PSS, will not constitute a conversion of forested wetland.

Prior to construction, limited clearing within the ROW will be required for construction of the Project. Initial clearing operations will include the removal of vegetation within the construction workspace either by hand cutting or mowing. The limits of clearing will be identified and flagged in the field prior to any vegetation cutting operations. In the wetlands, brush will be hand-cut and removed from the site. Unless grading is required for safety reasons, vegetation will be cut off at ground level, leaving existing root systems intact to revegetate.

Closely following clearing, but prior to grading, erosion controls will be installed at the required locations as outlined in the E&SCP. The Project E&SCP will be reviewed concurrently by the Westmoreland County Conservation District (WCCD) and Indiana County Conservation District (ICCD). WCCD will be the lead Conservation District and coordinate review with ICCD, and will provide comments and approval directly to PADEP.

The construction workspace will be rough graded as necessary to allow for safe passage of equipment and to prepare a work surface for construction activities. However, as stated above, the rootstock of shrubby vegetation in upland areas will be left in the construction workspace wherever possible to encourage natural revegetation and, unless grading is required for safety reasons, wetland vegetation will be cut off at ground level, leaving existing root systems intact. Typically, the grading of the construction workspace will be completed with bulldozers. Backhoes will be used in conjunction with bulldozers in areas where boulders require removal. Timber mats will be placed over wetlands within the LOD.

In-Situ Replacement of Existing Line 12 Segment and Installation of New Line 12 Segment

A trench will be excavated to expose the existing pipeline between the MLV and HDD entry/exit point on the west side of the Conemaugh River, and between the HDD entry/exit and new MLV on the east side of the River. In general, the trenches will be approximately 15 feet wide and 9 feet deep. This is necessary to provide adequate room for safe removal of the existing Line 12 segment and installation of the new pipeline. Excavated material will be placed next to the trench so as to avoid unnecessary movement of machinery across the terrain. These construction activities will not impact any wetlands or watercourses. However, the entire Project area on the west side of the Conemaugh River and a portion of the Project area on the east side are within Federal Emergency Management Agency (FEMA)-delineated floodplain.

Should trench dewatering be necessary, it will be pumped to a stable, vegetated upland area (where practical), and filtered through a filter bag. The trench will be dug by an excavator or backhoe.

All suitable material excavated during trenching will be replaced in the trench once the pipeline has been replaced. In areas where excavated material is unsuitable for backfilling, additional clean fill will be brought from a commercial borrow area in the region. To protect the new coating, the pipe is padded with relatively rock-free material placed immediately around the pipe. Suitable padding material is typically made by mechanically screening the subsoil directly over the pipe trench using an excavator outfitted with a 'padding bucket'. If suitable padding material is unavailable, material will be brought from a commercial borrow area in the region. In no case will topsoil be used as padding material. Once the pipe is padded, the trench is then backfilled with the remainder of the excavated subsoil material. The top of the trench may be slightly crowned to compensate for settling. Topsoil is then spread across the construction workspace as needed. Upon completion of finish grading the soil is inspected for compaction and scarified as necessary.

Once backfilling is complete, restoration and revegetation of the construction workspace will immediately occur. In general, every effort will be made, weather and soil conditions permitting, to complete final cleanup (including final grading) and installation of any permanent erosion control measures within 20 days after the trench is backfilled. In conjunction with backfilling operations, any woody material and construction debris will be removed from the construction workspace. The construction workspace will be fine-graded to prepare for restoration. Permanent water bars will be reinstalled in accordance with FERC requirements for slope and spacing using compacted soil and maintained in accordance with the E&SCP at the existing locations. Permanent water bars will be installed to match existing water bars on adjacent undisturbed pipeline ROW.

Revegetation will be completed in accordance with permit requirements and in accordance with the E&SCP. The construction workspace will be seeded within six (6) working days following final grading, weather and soil conditions permitting. Alternative seed mixes specifically requested by the landowner or agencies may be used. Any soil disturbance that occurs outside the permanent seeding season or any bare soil left unstabilized by vegetation will be mulched in accordance with the E&SCP.

HDD Operation

HDD is a trenchless method of installing pipelines in areas where traditional open cut excavations are not feasible due to sensitive resource areas or logistical reasons. The greatest advantage of the HDD crossing technique is that open cut trenching and equipment disturbance within sensitive resource areas are not necessary, and, as a result, environmental impacts on sensitive resource areas are minimized. However, a greater amount of equipment staging is required for HDD than for the open cut crossing method.

The HDD operation will be accomplished in three stages. The first stage consists of directionally drilling a small diameter pilot hole along the pre-designed directional path. The second stage, commonly referred to as reaming, involves enlarging this pilot hole to a diameter suitable for installation of the pipeline. This is accomplished using reaming tools that consist of a circular array of cutting heads. The pilot hole is enlarged by making multiple passes with successively larger reaming tools. The third stage, pull back, consists of pulling the pipeline back into the enlarged hole. The pipeline string or pull section must be pre-fabricated prior to pull-back operations in a stringing area workspace extending behind the HDD exit workspace. The stringing area workspace in this area is limited, so the pull section will be fabricated in two pieces and welded together.

The entry-side equipment and operations typically will include the drilling rig and entry hole, control cab, drill string pipe storage, tool storage trailers, power generators, bentonite storage, bentonite slurry mixing equipment, slurry pump, cuttings separation equipment, cuttings return/settlement pit, water trucks and water storage, and the heavy construction equipment necessary to support the operation. Exit-side equipment and operations typically will include the exit point and slurry containment pit, cuttings return/settlement pit, cuttings separation and slurry reclamation equipment, drilling string pipe storage, and the heavy construction equipment necessary to support the operation.

In addition to the drilling operations to be conducted within this workspace footprint, temporary workspace will be required outside of the existing ROW to provide a straight corridor for handling pipe on the west side of the Conemaugh River where the ROW changes direction, in which to prefabricate the pipeline into one continuous section in preparation for the pull-back. Once assembled, the pipeline will be placed on pipe rollers so that it may be conveyed into the drill hole during the pull-back operation.

Wetland and Watercourse Crossings

One PEM/PSS and one PEM/PSS/PFO wetland will be crossed via temporary structures and used as workspace during construction operations resulting in 1.96 acres of temporary impact (1.36 acres in wetland W-BJM-011 and 0.60 acres of impact in wetland W-BJM-010). The HDD operation will install a new segment of Line 12 beneath one PEM wetland resulting in 0.03 acres of permanent impact, and beneath one perennial watercourse and its assumed floodway resulting 0.02 acres of permanent impact. For additional information on these resources and the associated impacts, please refer to Table A-1 within Requirement A.

Access Roads

The ROW will be accessed via Westinghouse Road on the west side of the Conemaugh River and via Newport Road on the east side. A new permanent access road 20 feet wide and 375 feet long will be installed on the east side of the river from Newport Road to access the new permanent MLV. No wetlands or watercourses will be impacted as a result of accessing the ROW or new MLV.

Erosion and Sediment Control/Stormwater Management

Erosion and Sediment Control Plan is included in Requirement M of this permit application.

PNDI Avoidance Measures

A signed copy of the Pennsylvania Natural Diversity Inventory (PNDI) Project Environmental Review Receipt is provided within Requirement G of this permit application. The PNDI review resulted in "No Known Impacts" for threatened and/or endangered species under the jurisdiction of the PA Department of Conservation and Natural Resources (PA DCNR), PGC, PA Fish and Boat Commission (PFBC), and United States Fish and Wildlife (USFWS).

Statement on Water Dependency

Due to the linear nature of this project, avoidance of all wetland resources was not feasible. The proposed project is considered water dependent because it requires access to, proximity to, or siting within water to fulfill the basic purposes of this project.

Public Health, Safety, and Environment

The proposed Project facilities will be designed, constructed, tested, operated, and maintained in accordance with the USDOT Pipeline and Hazardous Materials Safety Administration regulations in Title 49 CFR Part 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, and other applicable federal and state regulations; and Project specific permit conditions.

Texas Eastern would implement an environmental compliance program for the Project to ensure that construction adheres to Texas Eastern's Plans and Procedures and Project-specific plans. Texas Eastern would conduct safety and environmental training for construction contractors, craft inspectors, field management and its environmental inspectors (EIs), and would provide them with an Environmental Permit Package containing copies of permits, related drawings, and other Project-specific environmental documentation.

The Project and proposed impacts are consistent with federal and state laws and regulations related to public health and welfare. The construction and subsequent operation and maintenance of interstate natural gas pipelines is licensed by the Federal Energy Regulatory Commission (FERC) under the NGA and the issuance of a Certificate of Public Convenience and Necessity from the FERC demonstrate a Project's economic need and public benefit.

AQUATIC RESOURCE IMPACT TABLE

PROJECT / SITE NAME:			Conemagh River Crossing					APPLICANT'S NAME / CLIENT:			Texas Eastern Transmission, LP								Date:			
DEP USE ONLY			Project Information								PADEP / 105											
PADEP Permit Number	Single and Complete Project Number	Crossing Number	Fees	Structure / Activity	Aquatic Resource Type	Latitude	Longitude	Waters Name	PA Code Chapter 93 Designation	Work Proposed / Impact Type	DEP Impact Type	Watercourse Impact Width	Watercourse Impact Length	Actual Stream Impact Area	DEP Stream Impact Area (leave blank)	Floodway Impact Width	Floodway Impact Length	Actual Floodway Impact Area	DEP Floodway Impact Area (leave blank)	Wetland Impact Width	Wetland Impact Length	Actual Wetland Impact Area	DEP Wetland Impact Area (leave blank)
leave blank	*leave blank*	*leave blank*		unique identifier		*dd nad83*	*dd nad83*				*temp / perm*	*linear feet*	*linear feet*	*square feet*	*square feet*	*linear feet*	*linear feet*	*square feet*	*square feet*	*linear feet*	*linear feet*	*square feet*	*square feet*
			$10,550	W-BJM-011	Palustrine Emergent (PEM)	40.454157	-79.304047	WETLAND	N/A	Temporary Workspace	Temp	–	–	–		-	-	-		118	480	56,552	
				W-BJM-011	Palustrine Scrub-shrub (PSS)	40.453907	-79.30384	WETLAND	N/A	Temporary Workspace	Temp	–	–	–		-	-	-		28	93	2,564	
				W-BJM-010	Palustrine Emergent (PEM)	40.454614	-79.302808	WETLAND	N/A	Temporary Workspace	Temp	–	–	–		-	-	-		65	320	20,816	
				W-BJM-010	Palustrine Scrub-shrub (PSS)	40.454602	-79.303316	WETLAND	N/A	Temporary Workspace	Temp	–	–	–		-	-	-		22	45	976	
				W-BJM-010	Palustrine Scrub-shrub (PSS)	40.454602	-79.303316	WETLAND	N/A	Wetland Conversion	Perm	–	–	–		-	-	-		22	45	976	
				W-BJM-010	Palustrine Forested (PFO)	40.454802	-79.302755	WETLAND	N/A	Temporary Workspace	Temp	–	–	–		-	-	-		28	160	4,472	
				W-BJM-010	Palustrine Forested (PFO)	40.454802	-79.302755	WETLAND	N/A	Wetland Conversion	Perm	–	–	–		-	-	-		28	160	4,472	
				W-CMS-016	Palustrine Emergent (PEM)	40.455699	-79.300104	WETLAND	N/A	Bore	Perm	–	–	–		-	-	-		2	637	1,275	
				S-JLK-037	Perennial (PER)	40.456669	-79.297892	Conemaugh River	WWF	Bore	Perm	2	195	386		2	50	100		-	-	-	

Requirement L

Environmental Assessment Form and Wetland Report

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Environmental Assessment Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

CHAPTER 105 ENVIRONMENTAL ASSESSMENT FORM

			Included	Item Location
Note: The Department may waive a specific information requirement in writing, at the request of the Applicant, during the pre-application review process if the Department determines the information is not necessary to complete the review.				
Module S1: Project Summary				
This module is intended to organize information in order to present an overall summary of the project scope, certain key information requirements and when applicable, a comprehensive view of the overall project and related projects.				
A. Provide an overall project description and If the answer to the question below is **YES**, address CEA requirements; otherwise proceed to **S1.B** Comprehensive Environmental Assessment (CEA) when applicable. Answer the following question:			☒	S1.A
Does the "overall" project require more than one Ch. 105 permit in more than one county or will the project be completed in more than one phase?	☐ Yes	☒ No		
B. Provide information related to the project purpose, need, water dependency and summarize the amount and type of resources present and the temporary and permanent impacts proposed to those resources.			☒	S1.B
Module S2: Resource Identification and Characterization				
This module is intended to organize information related to the identification of the resources present on the project site and to characterize those resources that may be affected by the proposed project.				
A. Provide the standard resource identification information, location map, wetland determination or delineation reports; watercourse reports; identification and qualifications of preparers; location map, and answer the related questions.			☒	S2.A
Is the site located within or adjacent to any of the following; or within 100 feet of items vii or viii?				
i. National, state or local park, forest or recreation area	☐ Yes	☒ No		S2.A
ii. National natural landmark	☐ Yes	☒ No		S2.A
iii. National wildlife refuge, or Federal, state, local or private wildlife or plant sanctuaries	☐ Yes	☒ No		S2.A
iv. State Game Lands	☒ Yes	☐ No		S2.A
v. Areas identified as prime farmland	☒ Yes	☐ No		Tbl S2-2
vi. Source for a public water supply	☐ Yes	☒ No		S2.A
vii. A National Wild or Scenic River or the Commonwealth's Scenic Rivers System	☐ Yes	☒ No		S2.A
viii. Designated Federal wilderness area	☐ Yes	☒ No		S2.A
B. Identify all aquatic resources present on the project site and provide an identifier, the resource type; size of the resource(s); fishery designations, Ch. 93 uses and special protection status; and Exceptional Value (EV) wetland analysis.			☒	S2.A/B
C. Provide the following information related to habitat for Federal threatened and endangered (T&E) plant and animal species or State T&E species or species of special concern - copies of search forms or search receipts; identification of avoidance and minimization efforts taken to resolve identified conflicts.			☒	S2.C
Did the PNDI search or agency coordination identify any potential conflicts?	☐ Yes	☒ No		S2.C
If the above is answered **YES**; answer the following two questions related to PNDI Coordination:				
a. *Is the applicant utilizing a sequential review of the PNDI coordination?*	☐ Yes	☐ No		
b. *Is the applicant utilizing a concurrent review of the PNDI coordination?*	☐ Yes	☐ No		
D. Characterize the aquatic resources: riverine, wetland and lacustrine present on the project site that are proposed to be directly or indirectly affected by the project. Including but not limited to the following, resource classification information, Level 2 rapid condition assessment results, discussion of resource functions, characterization of riparian properties and any other relevant information or studies conducted.			☒	S2.D/ S3.C
Module S3: Identification and Description of Potential Project Impacts				
*This module is intended to organize and present information concerning the potential impacts or effects of the proposed project **in this** application. Impacts related to the "over all" project that are proposed under related but separate application(s) should be addressed as part of the CEA Policy response under **S1.A**.*				
A. Provide a summary table of the proposed temporary and permanent direct and indirect impacts for each effected resource category (e.g. riverine, wetlands and lacustrine resources).			☒	S3.A
B. If any questions from **S2.A** Standard Information Response questions were answered YES, discuss in detail any potential impacts to those resource(s).			☒	S3.B
IMPORTANT NOTE: If either item vii or viii from S2.A is answered YES, the project is not eligible as a "Small Project Application" type. Complete all applicable sections of the EA form for the standard application type unless an item was otherwise waived by the Department in writing (see previous Note on waiving of information requirements).				

	Included	Item Location
C. Provide a table(s) of all proposed water obstruction(s), encroachment activities and dams (e.g. subfacility codes) and provide an identifier, the subfacility code and description, resource identifier from **S2.B**, latitude and longitude, the proposed temporary and permanent direct and indirect impacts and subfacility details.	☒	S3.C
D. Provide a discussion of how the proposed subfacility(ies) individually and in combination directly and/or indirectly impact the identified resource(s) and the effects on the applicable resource functions: hydrologic, biogeochemical, habitat, recreation, any other environmental impacts and the effects on the property or riparian rights of owners upstream, downstream or adjacent to the project.	☒	S3.D
E. **Antidegradation Analysis** - The applicant should demonstrate consistency with State antidegradation requirements as described in the Water Quality Antidegradation Implementation Guidance Policy Document Number 391-0300-002. Project application information provided below in **S3.F, G and H** may be cross-referenced.	☒	S3.E
F. **Alternatives Analysis** - The scope and extent of this analysis should be commensurate with the size and scope of the proposed project impacts *in this* application, information provided in **S4.A** below, related to avoidance and minimization efforts, may be cross-referenced.	☒	S3.F
G. **Potential Secondary Impact Evaluation** - Identify and describe environmental impacts on adjacent land and water resources associated with but not that direct result of the project.	☒	S3.G
H. Identify and evaluate the potential cumulative environmental impacts of this project and other potential or existing projects like it, and the impacts that may result through numerous piecemeal changes to the wetland resource.	☒	S3.H
Module S4: Mitigation Plan		
*This module is intended to organize and present information concerning actions undertaken in accordance with the definition of **Mitigation** in Title 25 Pa. Code Chapter 105 - §105.1, 105.16, 105.18a(a)(3), 105.18a(b)(7), 105.20a, and 105.21 as related to the potential impacts or effects of the proposed project **in this** application.*		
A. Identify and discuss any measures taken that resulted in avoiding or minimizing unavoidable resource impacts, provide detailed responses for individual proposed impact area(s) **and** the project as a whole.	☒	S4.A
B. Identify and discuss any repair, rehabilitation or restorative actions taken to rectify an impacted resource, provide detailed responses for individual proposed impact area(s) and the project as a whole. Identify and discuss any proposed preservation and maintenance operations that will be taken to reduce or eliminate an impact during the life of the project.	☒	S4.B
C. Identify and discuss any actions undertaken to provide compensatory mitigation including the purchase of credits from an approved provider, a detailed discussion of proposed compensation actions and how they will offset the lost resource functions. Provide detailed plans including performance standards and success criteria.	☒	S4.C
Answer the following question. If the answer to the question is **YES**, provide the information regarding the mitigation credit provider; otherwise provide a detailed mitigation plan. If the application proposes to utilize both mitigation bank credits and conduct permittee responsible mitigation; both the credit provider and mitigation plan information shall be submitted.	☒	
Does the applicant propose to utilize an approved mitigation bank to provide all or a portion of the compensation? ☒ Yes ☐ No		S4.C
D. When applicable, provide a plan to monitor the identified actions proposed in **S4.B** and/or **S4.C** compensatory mitigation area. Applicants should utilize the Department's Design Criteria and the USACE's RGL 08-03 -(http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl08_03.pdf) to develop monitoring plans for compensatory mitigation proposals. The plan should include performance standards/success criteria, duration and timeframes of monitoring, monitoring report template, and template remedial action or adaptive management plan.	☒	S4.D
Note: All or portions of this Module may apply to "Small Project" type applications under case specific circumstances and should be discussed during any pre-application meetings or prior to application submittal.		
CERTIFICATION		
I certify that the above statements, attachments including those labeled and identified as Enclosures, and all conclusions are true, correct, and based upon current environmental principles and science, to the best of my knowledge and belief.		
Signature	Date: 5/26/2020	

Module S1

Project Summary

MODULE S1
PROJECT SUMMARY

S1.A Project Description

Texas Eastern is seeking authorization from the Pennsylvania Department of Environmental Protection (PADEP) to mitigate for the aquatic resource impacts associated with replacement of a segment of existing natural gas pipeline located in Blacklick Township, Indiana County and Derry Township, Westmoreland County, Pennsylvania (PA). The location of the Project is depicted on the Location Map (Requirement I).

The Project is located entirely within an existing pipeline right-of-way (ROW) with limited area adjacent to the ROW needed for temporary workspace and new easement and is surrounded by agricultural and forest land. The Project area drains to Conemaugh River. Conemaugh River watershed is located within the Allegheny River basin.

The Conemaugh River has PA Code, Title 25, Chapter 93 designated protected aquatic life uses of *Warm Water Fishes* (*WWF*) (Commonwealth of PA, 2020a). PADEP does not list the Conemaugh River as having an Existing Use Classification (PADEP, 2020b). The Conemaugh River is not listed by the Pennsylvania Fish and Boat Commission (PFBC) as Stocked Trout Waters nor is it listed by the PFBC as Wild Trout Waters (PFBC, 2020c).

According to the *2018 Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, none of the receiving waters are listed as a siltation impaired waterbody (PADEP, 2018).

Construction of the Project will result in a total of approximately 21,792 square feet (0.60 acres) of temporary impact and 4,472 square feet (0.10) of permanent/conversion impact to wetland W-BJM-010, and 59,116 square feet (1.36 acres) of temporary impact to wetland W-BJM-011. The horizontal directional drill (HDD) avoids surface disturbance to wetland W-CMS-016 and watercourse S-JLK-037. The entire Project area on the west side of the Conemaugh River and a portion of the Project area on the east side of the Conemaugh River is within Federal Emergency Management Agency (FEMA)-delineated floodplain, as depicted on the Site Plan in Requirement H. Additional information regarding mitigation and restoration of the impacted wetlands is detailed in Requirement T.

The construction of this Project will not cause or contribute to pollution of groundwater, surface waters, or diminution of resources sufficient to interfere with their uses. A summary of specific measures undertaken or that will be taken to mitigate the overall Project impacts are summarized

in Requirement T and in Module S4. Module S3.E of this Environmental Assessment contains detailed information pertaining to the Project's overall consistency with the PADEP antidegradation requirements. More detailed information pertaining to antidegradation requirements pertaining to this Project can be found in the Erosion and Sediment Control Plan (E&SCP) contained within Requirement M.

The overall Project will be completed in a single phase and but is located in more than one county. Consequently, a Comprehensive Environmental Assessment (CEA) that complies with the requirements described in the *Comprehensive Environmental Assessment of Proposed Project Impacts for Chapter 105 Water Obstruction and Encroachment Permit Application* is required in this Environmental Assessment (PADEP, 2017).

For additional Project information, please refer to Requirement J (Project Narrative) of the Joint Permit Application.

S1.B Additional Information

S1.B.1 Project Purpose and Need

The purpose of the Project is for Texas Eastern to replacement of a segment of their existing Line 12 pipeline adjacent to and beneath the Conemaugh River. Additional information pertaining to the Project can be found in the Project Narrative located in Requirement J.

S1.B.2 Statement of Water Dependency

Due to the nature of this project, avoidance of all aquatic resources was not feasible. The Project is considered water dependent because it requires access or proximity to or siting within water to fulfill the basic purposes of this project.

S1.B.3 Resource Summary

Table S1-1 below provides a quantitative summary of amount and types of delineated resources identified within the Project Study Area, which are depicted in Attachment S-1 and listed in Module S2.B. For additional information on delineated resources associated with this Project, please refer to Attachment S-1 for the *Wetland and Watercourse Delineation Report*.

Table S1-1. Summary of Resource Systems Present Within and Adjacent to Project Area

Resource Type	Classification[1]	Quantity	Delineated Size (acres)[3]	Delineated Size (linear feet)
Wetland	PEM	1	3.40	-
	PEM/PSS	1	1.47	-
	PEM/PSS/PFO	1	0.63	-
	Total	**3**	**5.50**	**-**
Watercourse	PER	1	-	195
	Total	**1**	**-**	**195**

[1] PEM= Palustrine Emergent, PSS= Palustrine Scrub-shrub, PFO= Palustrine Forested, PER= Perennial

S1.B.4 Impact Summary

Table S1-2 at the end of this section provides a summary of the permanent and temporary direct and indirect impacts within the proposed limit-of-disturbance (LOD) and described in Module S3.A. At the time of this permit application, there are no additional impacts anticipated to occur in the future beyond those contained within this permit application.

Aboveground Facilities

A new 100-foot by 100-foot valve site along with a permanent access road will be constructed at the eastern end of the Project.

Access Roads

One permanent access road is proposed for this Project. The proposed access road consists of approximately 375 linear feet, with an average width of approximately 20 feet.

Permanent Impacts

For the purposes of the Project, permanent impacts listed in Table S1-2 are the impacts that will occur from the placement or construction of a water obstruction or encroachment, and the area necessary for operation and maintenance. Permanent impacts associated with this Project are those locations where a Utility Line Crossing is required for the installation of the pipeline and where wetland cover types will be converted within Texas Eastern's ROW. These Utility Line Crossing impacts are located within the permanent ROW of the proposed Project and are all considered to be **permanent indirect** impacts as there is no net loss of resource acreage. The **permanent direct** impacts will remain following construction by conversion of a resource to another aquatic resource type.

Temporary Impacts

Temporary direct impacts listed in Table S1-2 are associated with impacts to resources during construction that constitute a temporary loss of a resource that is restored upon completion of construction. These temporary impacts will not be maintained as a result of the operation and maintenance of the Project. Temporary impacts associated with this Project are those locations where a Temporary Road Crossing is required to access the ROW and construct through the Utility Line Crossings, or where timber mats are used to cross a stream, wetland or floodway. These impacts are all considered to be temporary direct impacts because the temporary loss of the resource is restored following construction, thus there is no net loss of resource acreage. There are no proposed **temporary indirect** impacts associated with this Project.

These impacts correspond to the *Aquatic Resource Impact Table* located within Requirement J. Please note that for proposed Project, the permanent and temporary impact areas contained within the *Aquatic Resource Impact Table* and this Environmental Assessment may be greater than the actual impact due to overlap between the permanent and temporary impact areas. Specifically, at resource crossings where both open-cut pipeline installation (Utility Line Crossing) and timber matting (Temporary Road Crossing) activities are proposed, the permanent impact area for the pipeline installation is calculated based off of the width of the entire permanent ROW, which includes the area within which the timber matting will be placed. The impact area for the timber matting is then calculated independently and based off of a typical maximum timber mat width of 16 feet. As a result, such crossings will include proposed permanent and temporary impacts that, when combined, could result in a total impact area greater than the delineated size of the resource.

For more detailed information pertaining to the proposed Project permanent and temporary direct and indirect impacts of these resources please refer to Module S3.A.

Table S1-2. Summary of Proposed Impacts

Resource Type	Classification	Permanent[2]				Temporary[2]			
		Direct		Indirect		Direct		Indirect	
		Impact Area (square feet)	Impact Area (acres)	Impact Area (square feet)	Impact Area (acres)	Impact Area (square feet)	Impact Area (acres)	Impact Area (square feet)	Impact Area (acres)
Wetland[1]	PEM/PSS/PFO	5,448	0.12	1,275	0.03	85,380	1.96	-	-
Watercourse/Floodway	WWF	-	-	486	0.02	**-**	**-**	**-**	**-**
Total		**5,448**	**0.12**	**1,761**	**0.05**	**85,380**	**1.96**	**-**	**-**

[1] PEM= Palustrine Emergent, PSS=Palustrine Scrub/shrub, PFO-Palustrine Forested
[2] These impacts correspond to the *Aquatic Resource Impact Table* located within Requirement J.

Module S2

Resource Identification and Characterization

MODULE S2
RESOURCE IDENTIFICATION AND CHARACTERIZATION

S2.A Standard Resource Identification Information

On June 23 and 24, 2016; August 19, 2016; and March 5, 2020, AECOM environmental scientists performed site investigations to identify and delineate wetlands and watercourses that may be regulated under the Pennsylvania Clean Streams Law and Dam Safety and Encroachments Act and the federal Clean Water Act (Commonwealth of Pennsylvania (PA), 2020a and 2020b; Clean Water Act of 1972). The limit of the site investigation was defined by the easement limits of Texas Eastern's existing pipeline ROW and temporary workspace outside the existing ROW. During the site investigations, four (4) wetlands and one (1) watercourse were delineated within the Project area.

The *Wetland and Watercourse Delineation Report* located within Attachment S-1 contains information pertaining to the delineation process utilized to identify and delineate the wetlands found within the Study Area. This report also contains wetland and watercourse data forms and photos of the identified resources.

The AECOM scientists listed within Table S2-1 performed the aquatic resource delineations, and prepared permit application materials. Copies of the AECOM scientist resumes containing their qualifications are provided in Attachment S-2.

TABLE S2.1
SCIENTIST INFORMATION

Scientist Name	AECOM Mailing Address	E-mail Address	Portions of Work Completed
Jesse Killosky	No longer at AECOM	--	Resource Delineation
Brian Miller	681 Andersen Drive Pittsburgh, PA 15220	brian.miller1@aecom.com	Resource Delineation
Charlotte Stallone	564 White Pond Drive Akron, OH 44320	Charlotte.stallone@aecom.com	Resource Delineation
Eileen Banach	10 Orms Street Providence RI 02904	eileen.banach@aecom.com	Permit Application
Mark Benfer	715 Washington Boulevard Williamsport, PA 17701	mark.benfer@aecom.com	Permit Application

Scientist Name	AECOM Mailing Address	E-mail Address	Portions of Work Completed
Josh Singleton	715 Washington Boulevard Williamsport, PA 17701	josh.singleton@aecom.com	Delineation Report
Angela Chmiel	10 Orms Street Providence RI 02904	angela.chmiel@aecom.com	Permit Application

The Site Plan located within Requirement H and Figure 2 – Plan View located within the *Wetland and Watercourse Delineation Report* (Attachment S-1), both at a scale of 1:2,400 depict all of the wetlands and watercourses delineated within the Study Area as well as within the LOD for the Project. These features are all labeled with unique identifiers and their classifications.

The Location Map contained within Requirement I shows the overall Project area with all receiving waters and political boundaries labeled on the United States Geological Survey 7.5-minute series Blairsville, PA topographical quadrangles (National Geographic Society, 2013) at a scale of 1:24,000. Based on available data, no natural areas, wildlife sanctuaries, natural landmarks and other geographical or physical features including cultural, archaeological and historical landmarks were identified within 1 mile of the Project area. Therefore, these features are not shown on the enclosed Location Map.

The Project is not located in or within 100 feet of a national or local park, forest, or recreation area. The Project is located within a United States Army Corps of Engineers (USACE) flood control zone and USACE-owned land on the east side of the Conemaugh River, which is leased to the PA Game Commission (PGC). The Project is not located in or within 100 feet of a national natural landmark, national wildlife refuge, or federal or local or private wildlife or plant sanctuaries. It is also not located in or within 100 feet of a national wild or scenic river, the Commonwealth's Scenic Rivers System, or any areas designated as a Federal Wilderness Area. According to the PADEP's eMapPA Internet application, the Project is not located along any private or public water supply (PADEP, 2020).

Two prime farmland soil map units listed by the Natural Resource Conservation Service (NRCS) were identified within the Project area.

Table S2-2: Prime Farmland Soils

Map Unit Symbol	Description	Acreage within Limit-of-Disturbance
MoA	Monongahela silt loam, 0 to 3 percent slopes	3.2
MoB	Monongahela silt loam, 3 to 8 percent slopes	6.0
Total Acres:		**9.2**

The Project area is occupied by an existing natural gas ROW and is surrounded by agricultural and forest land. The Project area drains to the Conemaugh River, which is located in the Allegheny River basin.

The Conemaugh River has PA Code, Title 25, Chapter 93 designated protected aquatic life uses of *Warm water Fishes* (*WWF*) (Commonwealth of PA, 2020a). The Conemaugh River is not listed by the PFBC as Stocked Trout Waters, nor is it listed as Stocked Trout Waters (PFBC, 2020a and 2020b). The entire Project area on the west side of the Conemaugh River and a portion of the Project area on the east side of the Conemaugh River is within Federal Emergency Management Agency (FEMA)-delineated floodplain, as depicted on the Site Plan in Requirement H.

According to the 2018 *Final Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, none of the receiving waters are listed as a siltation impaired waterbody (PADEP, 2018).

S2.B Aquatic Resources That May Be Affected

Table S2-3 lists the wetlands located within the Project Study Area that have the potential to be affected by the Project. The identified wetlands contain a project-specific resource identifier ("W").

The sizes of the existing resources listed in Tables S2-3 contains information pertaining to whether any of the wetlands delineated within the Study Area are EV according to PA Code, Title 25, Chapter 105 [105.17 (iii)].

Table S2-3. Wetland Summary

Wetland ID[1]	Classification[2]	Delineated Size (acres)	Chapter 105 Wetland Classification	Hydrogeomorphic Classification (HGM)[4]	Palustrine Community Classification[5]
W-BJM-010	PEM/PSS/PFO	0.63[3]	-	Flat mineral soil	Mixed Forb – Graminoid Wet Meadow
W-BJM-011	PEM/PSS	1.47[3]	-	Flat mineral soil	Mixed Forb – Graminoid Wet Meadow
W-CMS-007	PEM	0.13	-	Flat mineral soil	Mixed Forb – Graminoid Wet Meadow
W-CMS-016	PEM	3.40[3]	-	Flat mineral soil	Mixed Forb – Graminoid Wet Meadow

Notes:
[1] Wetland ID is an AECOM designation for a wetland.
[2] PEM= Palustrine Emergent, PSS= Palustrine Scrub-Shrub, PFO= Palustrine Forested
[3] The wetland area is open-ended and continues outside of the Study Area. Acreage included within table represents the delineated acreage within the Project Study Area.
[4] HGM classifications were assigned from *Hydrogeomorphic Classification. HGM classification for wetlands of the Mid-Atlantic Region, USA* (Brooks).
[5] PCC classifications were assigned from *Terrestrial and Palustrine Plant Communities of Pennsylvania, 2nd Edition* (Zimmerman et al., 2012).

S2.C Threatened and Endangered Species and Species of Special Concern

A signed copy of the Pennsylvania Natural Diversity Inventory (PNDI) Project Environmental Review Receipt is provided within Requirement G of this permit application. The PNDI review resulted in "No Known Impacts" for threatened and/or endangered species under the jurisdiction of the PA Department of Conservation and Natural Resources (PA DCNR), PGC, US Fish and Wildlife Service (USFWS) and PA Fish and Boat Commission (PFBC).

S2.D Aquatic Resource Characterization

Table S2-3 above contains all the resources potentially affected by the Project. The *Wetland and Watercourse Delineation Report* contained within Attachment S-1 contains data sheets, resource mapping and photos of all delineated resources. In some instances, these resources extended outside of the Project Study Area and are depicted in the report as being open-ended.

The impacted wetlands and Conemaugh River were evaluated using the PA Wetland Condition Level 2 Rapid Assessment Protocol (L2RAP) (PADEP, 2016). The overall score for the Conemaugh River is 0.76; the overall score for wetland W-BJM-010 is 0.90; the overall score for wetland W-BJM-011 is 0.89; and the overall score for wetland W-CMS-016 is 0.96. Mapping and data sheets related to the L2RAP are provided in Attachment S-3.

S2.D.1 Riverine Resources

The Conemaugh River was the only riverine resource delineated within the Project area. This resource will be crossed using a horizontal directional drill (HDD) bore and there will be no impact to riverbanks or bed.

S2.D.2 Wetland Resources

Table S2-3 above provides the following information for each delineated wetland: Hydrogeomorphic (HGM) classification, Cowardin vegetation class, and Palustrine Community Classification (PCC) (Brooks; Zimmerman et al., 2012).

The following section contains information pertaining to the wetland HGM types and conditions as they relate to their inherent functions including, but not limited to, those associated with hydrologic, biogeochemical and habitat attributes as well as any applicable recreational uses.

Habitat Attributes

As shown in Table S2-3, the wetlands within the Study Area were identified as wetland HGM code flat mineral soil. Additionally, wetlands were classified as PEM, PEM/PSS/PFO, and PEM/PSS wetland type. Wetland PCC classification identified was: Mixed Forb – Graminoid Wet Meadow. The most common dominant herbaceous plant species observed were *Juncus effusus, Microstegium vimineum, Chamaedaphne calyculata, Fallopia japonica, Juncus tenuis*, and *Carex crinita*. The most common Sapling-Sapling/Shrub species were *Frangula alnus*, *Ulmus Americana*, *Fraxinus pennsylvanica*, *Acer rubrum*, *Cornus racemosa, Platanus occidentalis*. The most common tree species were *Platanus occidentalis*, *Fraxinus pennsylvanica*, and *Acer rubrum*,

The primary indicators of hydrology were Surface Water (A1), High Water Table (A2), Saturation (A3), Water-Stained Leaves (B9), Aquatic Fauna (B13), and Oxidized Rhizospheres on Living Roots (C3). Wetland soils matrix hues were 10YR, 2.5YR, and 5GY with low chroma (≤2). Soils met the criteria for hydric soil indicators Depleted Matrix (F3). The soil texture was silty loam or clay loam.

Hydrologic Patterns

The landform/geomorphic setting of identified wetlands was identified as hillsides, and groundwater primarily provides hydrology to the hillside wetlands.

Biogeochemical

No obvious sources of pollution were observed within the Project area.

Recreational Uses

Hunting is a major recreational activity in the region; however, the Project area is located within privately-owned land that is bisected by two roads, which does not offer opportunities for public hunting, hiking or observation of wildlife. Game species present in the general vicinity may include wild turkey (*Meleagris gallopavo*), white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), eastern cottontail rabbit (*Sylvilagus floridanus*), black bear (*Ursus americanus*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canus latrans*), and ruffed grouse (*Bonasa umbellus*), amongst others. Non-game species present in the general vicinity may include red-tailed hawk (*Buteo jamaicensis*), eastern screech owl (*Otus asio*), American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), eastern chipmunk (*Tamias striatus*), striped skunk (*Mephitis mephitis*), and resident and neo-tropical songbirds.

S2.D.3 Lacustrine Resources

There are no lacustrine resources delineated within the Project area.

S2.D.4 Other Environmental Factors

Other environmental factors, special studies, macroinvertebrate studies, or substitute methods were not conducted for the proposed Project; therefore, discussion of such methods is not provided.

Module S3

Identification and Description of Potential Project Impacts

MODULE S3
IDENTIFICATION AND DESCRIPTION OF POTENTIAL PROJECT IMPACTS

S3.A Impact Summary

Construction of the Project will result in a total of approximately 1,761 square feet (0.05 acres) of permanent impact to wetland W-CMS-016 and stream/floodway S-JLK-037, and 85,380 square feet (1.96 acres) of temporary impact to wetlands W-BJM-010 and W-BJM-011. Impacts will result from temporary workspaces and HDD operations. The entire Project area on the west side of the Conemaugh River and a portion of the Project area on the east side of the Conemaugh River is within Federal Emergency Management Agency (FEMA)-delineated floodplain, as depicted on the Site Plan in Requirement H. No lacustrine resources were identified within the Project area; therefore discussion of impacts to these resources is not applicable to this Module. Table S1-2 in Module S1 contains a summary of the proposed permanent and temporary direct and indirect impacts.

S3.B Standard Information Responses

The Project is not located in or within 100 feet of a national or local park, forest, or recreation area; nor is it located in or within 100 feet of a national natural landmark, national wildlife refuge, or federal or local or private wildlife or plant sanctuaries. It is also not located in or within 100 feet of a national wild or scenic river, the Commonwealth's Scenic Rivers System, or any areas designated as a Federal Wilderness Area. The Project is not located along any private or public water supply (PADEP, 2020a and PaGWIS, 2020).

United States Army Corps of Engineers (USACE)-owned land on the east side of the Conemaugh River is leased to the PA Game Commission (PGC), which maintains the leased property as active farmland. Approximately 9.2 acres within the LOD are mapped as prime farmland soils by the NRCS (NRCS, 2018). These prime farmland soils are located in active farmland which will continue to be farmed following construction of the pipeline, with the exception of the new mainline valve (MLV) and access road. The USACE and PGC are both amenable to this project and the minor loss of farmland in the interest of safe maintenance and operation of the pipeline system.

S3.C Subfacility Details

Please see Table S3-1 for all subfacility details including the affected resources, coordinates, location, permanent direct and indirect impacts, and temporary direct and indirect impacts.

TABLE S3-1– Subfacility Details

Resource Crossing Number	County	Municipality	Latitude (DD, NAD83)	Longitude (DD, NAD83)	Resource / Subfacility ID[1]	Feature Type	Resource Type [2]	Regulatory Classification[3]	Impact Type	Impact Area (feet^2)	Impact Area (acres)	Crossed By	Subfacility Code(s)	Crossing Type and Product Code(s)
1	Westmoreland	Derry	40.454157	-79.304047	W-BJM-011	Wetland	Palustrine Emergent (PEM)	N/A	Temporary Direct		56,552	Temporary Workspace	TMPWI	TRNC, PETRO
2	Westmoreland	Derry	40.453907	-79.30384	W-BJM-011	Wetland	Palustrine Scrub-shrub (PSS)	N/A	Temporary Direct		2,564	Temporary Workspace	TMPWI	TRNC, PETRO
3	Westmoreland	Derry	40.454614	-79.302808	W-BJM-010	Wetland	Palustrine Emergent (PEM)	N/A	Temporary Direct		20,816	Temporary Workspace	TMPWI	TRNC, PETRO
4	Westmoreland	Derry	40.454602	-79.303316	W-BJM-010	Wetland	Palustrine Scrub-shrub (PSS)	N/A	Temporary Direct		976	Temporary Workspace	TMPWI	TRNC, PETRO
5	Westmoreland	Derry	40.454602	-79.303316	W-BJM-010	Wetland	Palustrine Scrub-shrub (PSS)	N/A	Permanent Direct		976	Wetland Conversion	WTDIM	TRNC, PETRO
6	Westmoreland	Derry	40.454802	-79.302755	W-BJM-010	Wetland	Palustrine Forested (PFO)	N/A	Temporary Direct		4,472	Temporary Workspace	TMPWI	TRNC, PETRO
7	Westmoreland	Derry	40.454802	-79.302755	W-BJM-010	Wetland	Palustrine Forested (PFO)	N/A	Permanent Direct		4,472	Wetland Conversion	WTDIM	TRNC, PETRO
8	Westmoreland	Derry	40.455699	-79.300104	W-CMS-016	Wetland	Palustrine Emergent (PEM)	N/A	Permanent Indirect		1,275	Bore	WTIIM	TRNC, PETRO
9	Westmoreland/ Indiana	Derry/ Blacklick	40.456669	-79.297892	S-JLK-037	River	Perennial (PER)	WWF	Permanent Indirect		486	Bore	WTIIM	TRNC, PETRO

[1] AECOM Designation

[2] Classification based upon field observation by AECOM

[3] As defined by PA Code, Title 25, Chapter 106.1

S3.D Resource Function Effects

The wetland impacts proposed for the Project are summarized and tabulated on the Aquatic Resource Impact Table which is attached in Requirement J. Watercourse S-JLK-037 and its associated floodway will be impacted by this Project through having a pipeline HDD bored under the watercourse and floodway. Four (4) wetlands were delineated during the watercourse and wetland investigation. Three wetlands will be impacted by the Project. W-BJM-011 and W-BJM-010 will be temporary impacted by the temporary workspace, and W-CMS-016 will be permanently impacted by the pipeline that will be bored under the wetland.

Hydrologic Impacts

The Project is not anticipated to adversely affect the natural drainage patterns, groundwater discharge, natural recharge areas, or storm and floodwater storage and control or have a significant impact to the water quality characteristics provided by the wetlands within the Project area. Impacts to the watercourse flushing characteristics, stream gradient, or sensitive waterbodies will be minimal due to HDD methodology being used to install a new section of pipeline. The Erosion and Sediment Control Plan (E&SCP) (see Requirement M) is consistent with the standard design criteria from the Pennsylvania Stormwater Best Management Practices Manual (BMP Manual) to protect water quality.

An approved E&SCP and appropriate BMPs will be implemented and utilized as necessary to reduce any temporary effect on water quality and resources during restoration efforts.

Habitat Impacts

Texas Eastern plans to restore all impacted areas to pre-construction conditions following the completion of construction activities, with the exception of the permanently converted portions of PFO and PSS wetland and the new mainline valve (MLV) and access road. Texas Eastern intends to purchase mitigation credits to offset the wetland conversions. The mainline valve and access road will be placed within active farmland and represents minimal habitat loss.

Biogeochemical Impacts

Minimal temporary impacts to food chain production may occur during construction. No processes or communities that are important ecologically to food chain production would be impacted for longer than the duration of construction. Additionally, wetland and upland disturbed areas will be restored to original condition once construction activities are

complete, with the exception of the permanently converted portions of PFO and PSS wetland and the new MLV and access road. Texas Eastern intends to purchase mitigation credits to offset the wetland conversions. The mainline valve and access road will be placed within active farmland and represents minimal loss to food chain production.

Recreation

As mentioned previously, public recreational activities such as hunting, or fishing are unlikely to occur in the Project area which is located within privately-owned land surrounded by forested land. As such, impact on recreational activates is not likely to occur.

Properties upstream and downstream of the Project area include existing roadway, forest land, and pipeline ROW. These land uses should not have any further impact on the aquatic habitat within the Project area. The areas that are to be impacted during construction will be restored as depicted on the E&SC Plans within Requirement M. The proposed construction activities will not permanently restrict the property rights of landowners upstream or downstream of the proposed Project as the area will be returned to pre-construction conditions.

Environmental impacts on other adjacent land are expected to be minimal. These impacts are anticipated to consist of increased noise levels from machinery and dusty conditions. To minimize these impacts, an approved E&SCP will be implemented and utilized during construction activities.

S3.E Antidegradation Analysis

The proposed construction activities have been evaluated for non-discharge alternatives for compliance with the PADEP's antidegradation requirements in PA Code, §102.4(b)(6). Non-discharge alternatives are defined as environmentally sound and cost effective BMPs that individually or collectively eliminate the net change in stormwater volume, rate and quality for storm events up to and including the 2-year design storm when compared to the stormwater rate, volume and quality prior to the earth disturbance activities.

Various BMPs identified as non-discharge alternatives in the *Erosion and Sediment Pollution Control Program Manual* (PADEP, 2012) were considered and evaluated for implementation as part of the proposed activities. These alternatives were evaluated individually, and in various

combinations, for their ability to minimize accelerated erosion and sedimentation during the earth disturbance activity in order to achieve no net change from pre-development to post-development volume, rate and concentration of pollutants in stormwater runoff. The primary non-discharge alternatives/BMPs considered for construction activities are limiting the disturbed area and limiting extent and duration of the disturbance.

The LOD to be utilized for construction has been established to restrict construction activities to occur within the existing pipeline ROW. Since the Project area will be restored to pre-construction conditions, there is no negative affect on land use anticipated. The Project area will only incur temporary land disturbance until vegetation is established.

Texas Eastern will limit the extent and duration of the earth disturbance during construction. The duration and extent of earth disturbances will be limited to the minimal timeframe necessary to complete activities. Temporary or permanent stabilization is to occur as soon as possible upon completion. This BMP is very effective at reducing the concentration of pollutants in stormwater runoff and reducing the impact of sediment runoff volume and rate.

As demonstrated in the previous paragraphs, due to the nature of the Project, the proposed activities are not expected to have an impact on the volume, rate and concentration of pollutants in stormwater runoff up to, and including, the 2-year/24-hour storm. Antidegradation Best Available Combination of Technologies (ABACT) BMPs are not required as the Project is not located in a high-quality or exceptional value watershed. The E&SCP contained within Requirement M of this permit application depicts the locations of all planned BMPs and details for construction.

The proposed Project will create a small amount of new impervious cover, which is of concern for stormwater management. Minimizing the LOD to the minimum area necessary to install the replacement segment and minimizing tree clearing will maintain existing vegetative cover, where feasible and maintain the infiltration capacity of undisturbed areas to the maximum extent practicable.

It is not anticipated that the cumulative effect of this construction will have a major impairment on the Commonwealth's wetland resources because reclamation involves restoring the temporarily impacted wetland area. Furthermore, the wetlands impacted and surrounding upland areas will be restored to original contours and conditions following the completion of all construction activities.

S3.F Alternatives Analysis

An alternative analysis has been provided within Requirement S.

S3.G Potential Secondary Impact Evaluation

In addition to the resources impacted during original pipeline construction, there are adjacent wetlands that will be avoided during construction. Wetlands W-BJM-011 and W-BJM-010 extend outside the LOD and a secondary impact is possible to the off-site portions of these wetlands. Wetland W-CMS-016 and the Conemaugh River (S-JLK-037) will not be impacted by construction workspace but the HDD bore path will travel below both resources. Wetland W-CMS-007 is proposed to be avoided but is located adjacent to construction workspace. These resources are described in Table S3-2 and additional information pertaining to this resource is located within the *Wetland and Watercourse Delineation Report* within Attachment S-1.

Table S3-2. Potential Secondary Impacted Resources

Resource Type	Resource ID[1]	Classification[2]	Chapter 93 Designation[3]	Stocked Trout Waters	Wild Trout Waters	Special Protection Status
Wetland	W-BJM-011	PEM/PSS	-	-	-	-
Wetland	W-BJM-010	PEM/PSS/PFO	-	-	-	-
Wetland	W-CMS-016	PEM	-	-	-	-
River	S-JLK-037	PER	WWF	-	-	-
Wetland	W-CMS-007	PEM	-	-	-	-

Notes:

[1] Resource ID is an AECOM designation

[2] PEM= Palustrine Emergent , PSS=Palustrine Scrub/shrub, PFO=Palustrine Forested, PER=Perennial

[3] PA Code, Title 25, Chapter 93 Designated Use or Existing Use Designation, whichever is more protective

The nature of this Project is not anticipated to cause any direct or indirect secondary impacts on adjacent land or resources. The Project will not permanently restrict the property rights of landowners upstream or downstream. There are no dams, water obstructions, or encroachments necessary to fulfill this Project purpose.

S3.H Cumulative Impacts

The CEA Policy states that when a temporary wetland impact is proposed to be properly restored, the applicant does not need to identify the temporary impact as an adverse cumulative impact.

Texas Eastern intends to restore the temporarily impacted wetlands immediately following construction with the exception of the permanently converted portions of PFO and PSS wetland. Texas Eastern intends to purchase mitigation credits to offset the wetland conversions. It is anticipated that this Project will have 0.05 acres of permanent wetland and stream impact due to the pipeline bored under wetland W-CMS-016 and watercourse S-JLK-037 along with its associated floodway. The pipeline will be installed via HDD bore and is unlikely will have any adverse effects on the local watershed. The wetland surface and watercourse riverbanks and bed will not be disturbed during construction activities, so all vegetation will remain intact and minimal impact to underground hydrology will not occur.

Texas Eastern will continue to evaluate the integrity of its pipelines using in-line inspection tools in accordance with the mandates and guidance of United States Department of Transportation (USDOT) Pipeline and Hazardous Materials Safety Administration's (PHMSA) 49 CFR 192 Subpart O, and future inspections may indicate the need for additional anomaly repairs to the pipelines in the Project area. However, if future anomaly repair is required, and impacts to wetlands within the Project area are required to address the anomaly, those impacts would similarly be temporary and restored to pre-construction conditions immediately following construction activities.

To address the Chapter 105 cumulative impacts requirements, PADEP recommends that the applicant identify and consider other existing and potential project permanent impacts for each wetland resource. The Project area was reviewed using the PADEP eMapPa interactive mapper, eFacts websites, and existing utilities surveyed during AECOM investigations to identify additional and/or cumulative wetland impacts that would occur as a result of existing or new potential projects. No current or future projects other than the anomaly investigations were identified within or adjacent to the Project area; however, an anomaly identified and repaired in 2020 was identified in eFacts. That anomaly was located was located outside of the Project area.

Module S4

Mitigation Plan

MODULE S4
MITIGATION PLAN

S4.A Avoidance and Minimization Measures

As described in the Alternatives Analysis (see Requirement S), the Project purpose and need cannot be accomplished without temporary impacts to wetlands and floodway and permanent impacts to wetlands, a river, and floodway; Texas Eastern will implement appropriate construction measures to minimize these unavoidable impacts. Construction workspace requirements are a function of pipe diameter, equipment size, topography, and geological rock formations. All construction activities are restricted to the limit of disturbance (LOD) on the Erosion and Sediment Control Plan (E&SCP) drawings. The construction workspace includes the bore entry and exit pit, temporary workspace to stage and weld the replacement pipeline, areas for soil stockpiling, and areas that construction equipment will utilize to complete the required repairs. Texas Eastern must provide sufficient workspace to permit the safe operation of construction equipment at the Project site.

The E&SCP best management practices (BMPs) for this earth disturbance activity have been planned to minimize the extent and duration of the proposed earth disturbance, maximize protection of existing drainage features and vegetation, reduce soil compaction, and employ measures and controls that reduce the generation of increased runoff. Specific BMPs have been selected for this site in order to achieve these broad goals. The location of proposed BMPs are shown on the E&SCP drawings.

Timber mats and equipment will not contain free-standing soil and vegetative materials prior to arrival on-site. This minimizes potential impacts from invasive plants, contaminants, biological diseases, etc.

S4.B Impact Repair, Rehabilitation, Restoration, Preservation and Maintenance

Restoration and revegetation of the construction workspace will immediately occur upon completion of construction activities. In conjunction with restoration operations, any woody material and construction debris will be removed from the construction workspace. Permanent water bars will be reinstalled using compacted soil and maintained in accordance with the E&SCP at the existing locations. Permanent water bars will be installed to match pre-existing water bars on pipeline ROW.

Revegetation will be completed in accordance with permit requirements and written recommendations on seeding mixes, rates, and dates obtained from the local soil conservation

authority or other duly authorized agency and in accordance with the E&SCP. Alternative seed mixes specifically requested by the landowner or agencies may be used. Any soil disturbance that occurs outside the permanent seeding season or any bare soil left unstabilized by vegetation will be mulched in accordance with the E&SCP.

Regarding preservation and maintenance, no vehicular traffic will be permitted across wetlands without the aid of temporary timber matting, or approved equal, at any time during construction in an effort to reduce the impact across resources.

S4.C Compensatory Mitigation

As described in the Alternatives Analysis (see Requirement S), Texas Eastern has incorporated all practicable measures to avoid and minimize environmental impacts associated with the Project. Texas Eastern's construction procedures have also been developed to minimize unavoidable impacts to wetlands. During Project construction, a Palustrine Emergent (PEM) wetland and the Conemaugh River will be crossed via horizontal directional drill (HDD). Two additional wetlands, one PEM/Palustrine Shrub/shrub (PSS) and one PEM/PSS/Palustrine Forested (PFO), will be crossed via temporary matting. Construction of the Project will result in a total of approximately 4,472 square feet (0.10 acres) of permanent/conversion impact to the PFO portion and 976 square feet (0.02 acres) to the PSS portion of one wetland. To mitigate for the wetland conversion, Texas Eastern intends to purchase off-site mitigation credits. Further information concerning mitigation is provided in Requirement T. Construction will be in accordance with the Project Description (see Requirement J) and Texas Eastern's E&SCP to minimize the potential for adverse effects to wetlands and floodway.

The construction procedures used to cross unsaturated wetlands are similar to those used on dry land. Stable temporary work surfaces may be required in wetlands where soils are saturated and unstable. Installing construction mats in the equipment travel lane is a typical method of site stabilization that Texas Eastern will employ, as necessary. During site preparation activities, vegetation will be cut to ground level within the wetland. Original topographic conditions and contours will be restored as close to pre-construction as possible after completion of the repair work.

S4.D Monitoring Plans

Texas Eastern will complete vegetation and site monitoring through final stabilization of the impacted areas as defined in the E&SCP and as required by state or federal agencies.

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Attachment S-1

Wetland and Watercourse Delineation Report

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May 5, 2020

William Brett
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Re: Wetland and Watercourse Delineation Report
Conemaugh River Crossing Project
Blacklick Township, Indiana County, and Derry Township, Westmoreland County, Pennsylvania

Dear Mr. Brett:

AECOM has prepared this *Wetland and Watercourse Delineation Report* as part of the environmental investigation conducted for Texas Eastern Transmission, LP (Texas Eastern), a wholly-owned subsidiary of Enbridge Energy Company, Inc. (Enbridge) for their 2020 Integrity Program (Project). This report pertains to the Conemaugh River Crossing Project (Site). The limit of the Site investigation is defined by the Study Area, as shown on Figure 2. The following report summarizes this investigation.

BACKGROUND

The Site is located in Blacklick Township, Indiana County, and Derry Township, Westmoreland County Pennsylvania (PA) and can be located on the United States Geological Survey (USGS) Blairsville, PA 7.5-minute series topographical quadrangle (National Geographic Society, 2013) (Figure 1).

The Site is a natural gas pipeline ROW and temporary access road, and is surrounded by agricultural and forest land. The Site drains to the Conemaugh River, which is located in the Allegheny River basin.

The Conemaugh River has PA Code, Title 25, Chapter 93 designated protected aquatic life uses of *Warm Water Fishes* (*WWF*) (Commonwealth of PA, 2020a). The Pennsylvania Department of Environmental Protection (PADEP) does not list the Conemaugh River as having an Existing Use Classification (PADEP, 2020).

The Conemaugh River is not listed by the Pennsylvania Fish and Boat Commission (PFBC) as Stocked Trout Waters, nor is it listed by the PFBC as Wild Trout Waters (PFBC, 2020a, 2020b, and 2020c).
According to the *2016 Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, the Conmeaugh River is not listed as a siltation impaired waterbody (PADEP, 2020).

Three wetlands identified by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) are located within the Study Area. They are identified as follows:

- L1UBHh – lacustrine, limnetic, unconsolidated bottom, permanently flooded, diked/impounded wetland,
- L2USAh – lacustrine, littoral, unconsolidated shore, temporary flooded, diked/impounded wetland, and
- PFO1/USAh – palustrine, forested, broad-leaved deciduous, unconsolidated shore, temporary flooded, diked/impounded wetland (USFWS, 2018) (Figure 2).

Seven soil map units are located within the Study Area. Each soil map unit has been given a hydric soil rating by the Natural Resources Conservation Service (NRCS, 2018) (Table 1).

Table 1. Study Area Soil Map Units

Soil Map Unit	Description	Hydric Rating By Map Unit (%)
AhC	Allegheny silt loam, 8 to 15 percent slopes	0
GoF	Gilpin-Rock outcrop complex, 45 to 100 percent slopes	0
MoA	Monongahela silt loam, 0 to 3 percent slopes	5
MoB	Monongahela silt loam, 3 to 8 percent slopes	5
MoC	Monongahela silt loam, 8 to 15 percent slopes	5
W	Water	0
WeA	Weinbach silt loam, 0 to 2 percent slopes	5

METHODOLOGY

On June 23 and 24, 2016; August 19, 2016; and March 5, 2020, AECOM environmental scientists performed site investigations to identify and delineate wetlands and watercourses that may be regulated under the Pennsylvania Clean Streams Law and Dam Safety and Encroachments Act and the federal Clean Water Act (Commonwealth of PA, 2020a and 2020b; Clean Water Act of 1972).

To identify and delineate wetlands, AECOM performed an on-site routine wetland determination as described in the U.S. Army Corps of Engineers (USACE) *Wetland Delineation Manual*, *Technical Report Y-87-1* (Environmental Laboratory, 1987) using wetland criteria detailed in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains Piedmont Region (Version 2.0)*

(USACE, 2012). If a wetland was delineated, a USACE Regional Supplement *Wetland Determination Data Form* was completed at each selected data point. Data on the composition of the vegetation community, soil profile characteristics, and hydrology were recorded on the data form. Wetlands were classified following *Classification of Wetlands and Deepwater Habitats of the United States (*Cowardin et al., 1979). The boundaries of each wetland were recorded with a high-precision, mapping-grade Global Positioning System (GPS) unit and photographs were taken of each resource. Additional upland data points were taken in areas where desktop evaluation indicated a potential resource signature or in areas where wetland characteristics were present, but one or more wetland indicators was absent and wetland criteria were not met.

To identify and delineate watercourses, AECOM performed an on-site evaluation based on typical watercourse characteristics such as defined streambed and streambanks, exclusion of terrestrial vegetation, hydrologically-sorted substrate material, and the presence of an ordinary high water mark. If a watercourse was delineated, information was collected for each resource based on the *Physical Characterization/Water Quality Field Data Sheet* found in the Environmental Protection Agency's (EPA) *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish* (Barbour et al., 1999). The extent of each watercourse was recorded with a GPS unit and photographs were taken of each resource.

RESULTS

Two palustrine emergent (PEM) wetlands, one PEM/palustrine scrub/shrub (PSS) wetland complex, one PEM/PSS/palustrine forested (PFO) wetland complex, and one perennial (PER) watercourse were identified and delineated within the Study Area (Figure 2). Two additional upland (UPL) data points were recorded in areas where visible wetland characteristics were present, but did not meet all wetland criteria. The field data forms and photographs are provided in Appendices A and B, respectively. Each resource is summarized below.

- **Wetland W-BJM-011 (PEM/PSS):** W-BJM-011 consisted of a PEM and PSS wetland complex. The complex was located in a slight depression within the existing pipeline ROW. The delineated PEM component of W-BJM-011 was 1.41 acre in size, was located within the northwestern portion of the complex, and extended outside the Study Area to the north and south. The primary indicators of hydrology observed were Surface Water (A1), High Water Table (A2), Saturation (A3), and Aquatic Fauna (B13). The dominant herbaceous vegetation species were *Juncus effusus, Scirpus cyperinus*, and *Typha angustifolia.* The soil texture at this location was silt loam underlain by silty clay loam and met the criteria for hydric soil field indicator Depleted Matrix (F3).

  The delineated PSS component of W-BJM-011 was 0.06 acre in size and was located within the southeastern portion of the complex. The primary indicators of hydrology observed were Surface

Water (A1), High Water Table (A2), and Saturation (A3). *Platanus occidentalis* dominated the tree stratum, while the dominant vegetation identified within the sapling/shrub stratum included *Cornus racemosa and Rubus occidentalis*. The dominant herbaceous vegetation included *Scirpus cyperinus* and *Dichanthelium clandestinum.* The soil texture at this location was silt loam underlain by silty clay loam and met the criteria for hydric soil indicator Depleted Matrix (F3).

- **Wetland W-BJM-010 (PEM/PSS/PFO):** W-BJM-010 consisted of a PEM, PSS, and PFO wetland complex. The complex was located west of a pipeline meter site within the ROW. The PEM component of W-BJM-010 was 0.47 acre in size and was located within the northwestern and southern portions of the complex. The primary indicators of hydrology observed were Surface Water (A1), High Water Table (A2), Saturation (A3), and Aquatic Fauna (B13). The dominant herbaceous vegetation included *Juncus effusus* and *Cyperus esculentus.* The soil texture at this location was silty clay loam and met the criteria for hydric soil field indicator Depleted Matrix (F3).

  The delineated PSS component of W-BJM-010 was 0.04 acre in size, was located within the southeastern portion of the complex, and extended outside the Study Area to the north. The primary indicators of hydrology observed were High Water Table (A2), Saturation (A3), and Oxidized Rhizospheres along Living Roots (C3). The tree stratum was dominated by *Fraxinus pennsylvanica*, and the dominant vegetation identified within the sapling/shrub stratum included *Acer rubrum* and *Rosa multiflora*. The dominant herbaceous vegetation included *Dichanthelium clandestinum* and *Solidago rugosa.* The soil texture at this location was silt loam underlain by silty clay and met the criteria for hydric soil indicator Depleted Matrix (F3).

  The PFO component of W-BJM-010 was 0.12 acre in size and was located within the northern portion of the complex. The primary indicators of hydrology observed were Surface Water (A1), High Water Table (A2), Saturation (A3), and Water-Stained Leaves (B9). The dominant tree stratum species was Acer rubrum. Dominant vegetation identified within the sapling-sapling/shrub stratum included *Frangula alnus* and *Ulmus americana*. The dominant herbaceous vegetation was *Microstegium vimineum.* The soil texture at this location was silt loam underlain by silty clay and met the criteria for hydric soil indicator Depleted Matrix (F3).

- **Wetland W-CMS-016 (PEM):** This large PEM wetland was located within the floodplain of the Conemaugh River and extended outside of the Study Area to the north and south. The delineated portion of this resource was 3.40 acre in size. There were no primary indicators of hydrology observed; however, two secondary indicators of wetland hydrology were present in the forms of Drainage Patterns (B10) and Geomorphic Position (D2). The dominant herbaceous species were *Fallopia japonica* and *Chamaedaphne calyculata*. The soil texture at this location was clay loam and met the criteria for hydric soil field indicator Depleted Matrix (F3).

- **Wetland W-CMS-007 (PEM):** This PEM wetland originated on a hillside where several spring seeps emerged and extended outside of the Study Area to the southeast. The delineated portion of this resource was 0.13 acre in size. The primary indicators of hydrology observed were Surface Water (A1), High Water Table (A2), Saturation (A3), and Oxidized Rhizospheres along Living Roots (C3). The dominant herbaceous species were *Fallopia japonica, Juncus tenuis,* and *Carex crinita*. The soil texture at this location was loamy clay and met the criteria for hydric soil field indicator Loamy Gleyed Matrix (F2).

- **Watercourse S-JLK-037 (PER):** This PER watercourse was identified as the Conemaugh River and flowed adjacent to wetland W-CMS-016. The watercourse had a top width and overall channel depth of approximately 185 feet and ten feet, respectively. The morphology of watercourse S-JLK-037 consisted entirely of a pool feature. A qualitative review of the substrate for benthic macroinvertebrates was conducted and Ephemeroptera, Plecoptera, and Trichoptera taxa were observed.

SUMMARY

AECOM conducted a wetland and watercourse investigation on June 23 and 24, 2016; August 19, 2016; and March 5, 2020 for Texas Eastern Transmission, LP for the Conemaugh River Project within Blacklick Township, Indiana County, and Derry Township, Westmoreland County, Pennsylvania. Two PEM wetlands, one PEM/PSS wetland complex, one PEM/PSS/PFO wetland complex, and one PER watercourse were identified within the Study Area.

STATEMENT OF LIMITATIONS

- This investigation was limited to the Study Area shown herein. AECOM did not examine areas outside of the Study Area thus no information is provided regarding the presence or absence of regulated wetlands and watercourses outside of the Study Area.
- This investigation was conducted on the date(s) indicated herein. Human-induced or natural changes at the site may occur after this date which may cause changes in the presence and extent of regulated wetlands and watercourses.
- The findings of the site investigation completed by AECOM were limited to the date(s) contained herein and this report reflects the conditions at that time. In circumstances where a site has been developed prior to the site investigation, the presence or absence of pre-construction wetlands or watercourses and their estimated extents within the Study Area is beyond the scope of this report.

SIGNATURES

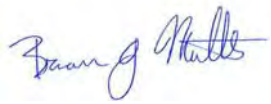
This report was prepared by:

AECOM

Josh Singleton
Environmental Scientist

And reviewed by:

AECOM



Brian J. Miller
Senior Ecologist

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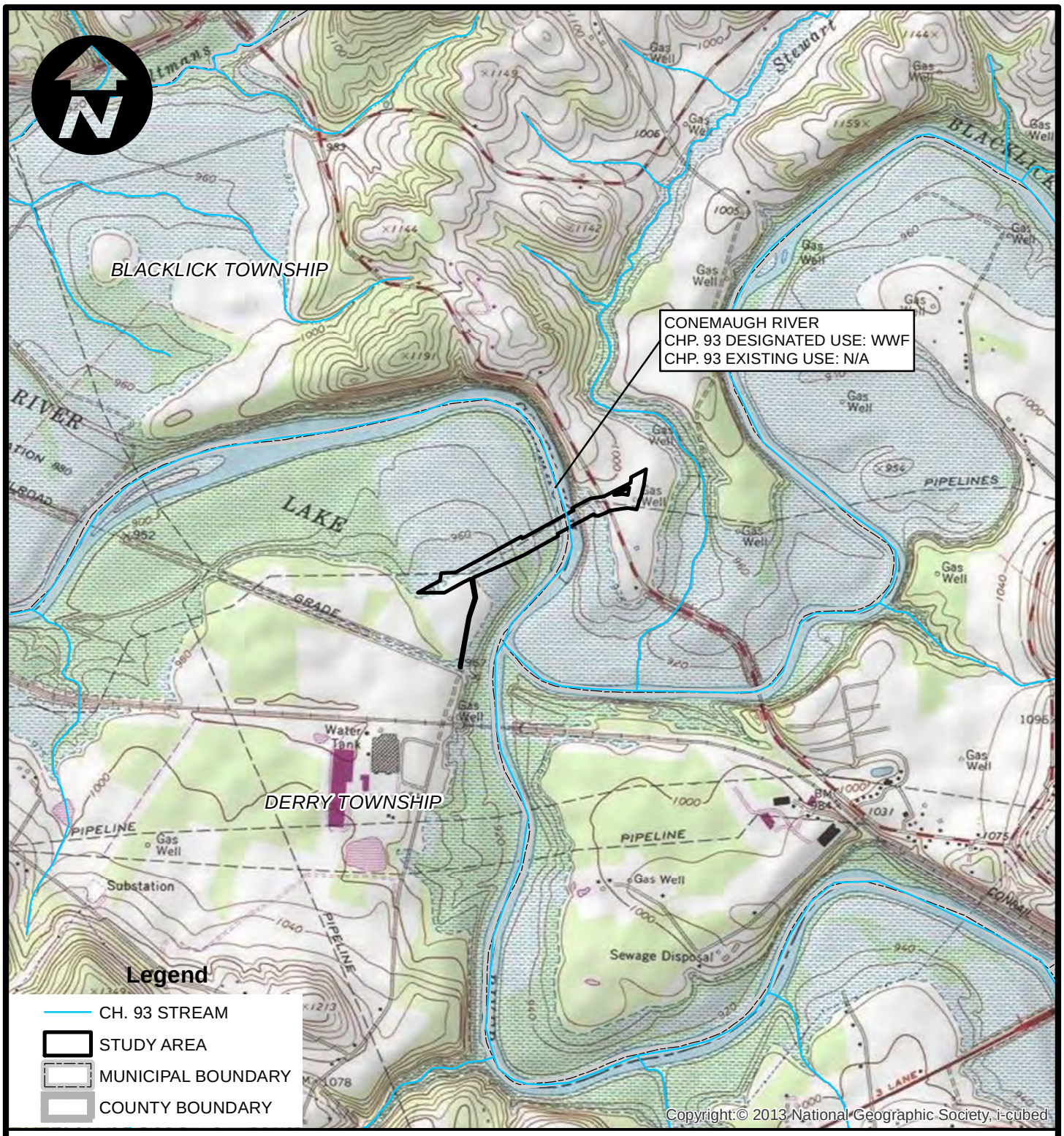
AECOM

FIGURES



USGS QUAD NAME: BLAIRSVILLE, PA
BLACKLICK TOWNSHIP, INDIANA COUNTY AND DERRY TOWNSHIP, WESTMORELAND COUNTY, PA
SITE CENTER: 40° 27' 21.15" N AND 79° 17' 57.81" W

TOPO SOURCE: SEAMLESS DIGITAL RASTER GRAPHIC-N.P.S. NATURAL PHYSICAL MAP & U.S.G.S. TOPOGRAPHIC MAP 2013, NATIONAL GEOGRAPHIC SOCIETY, ICUBED

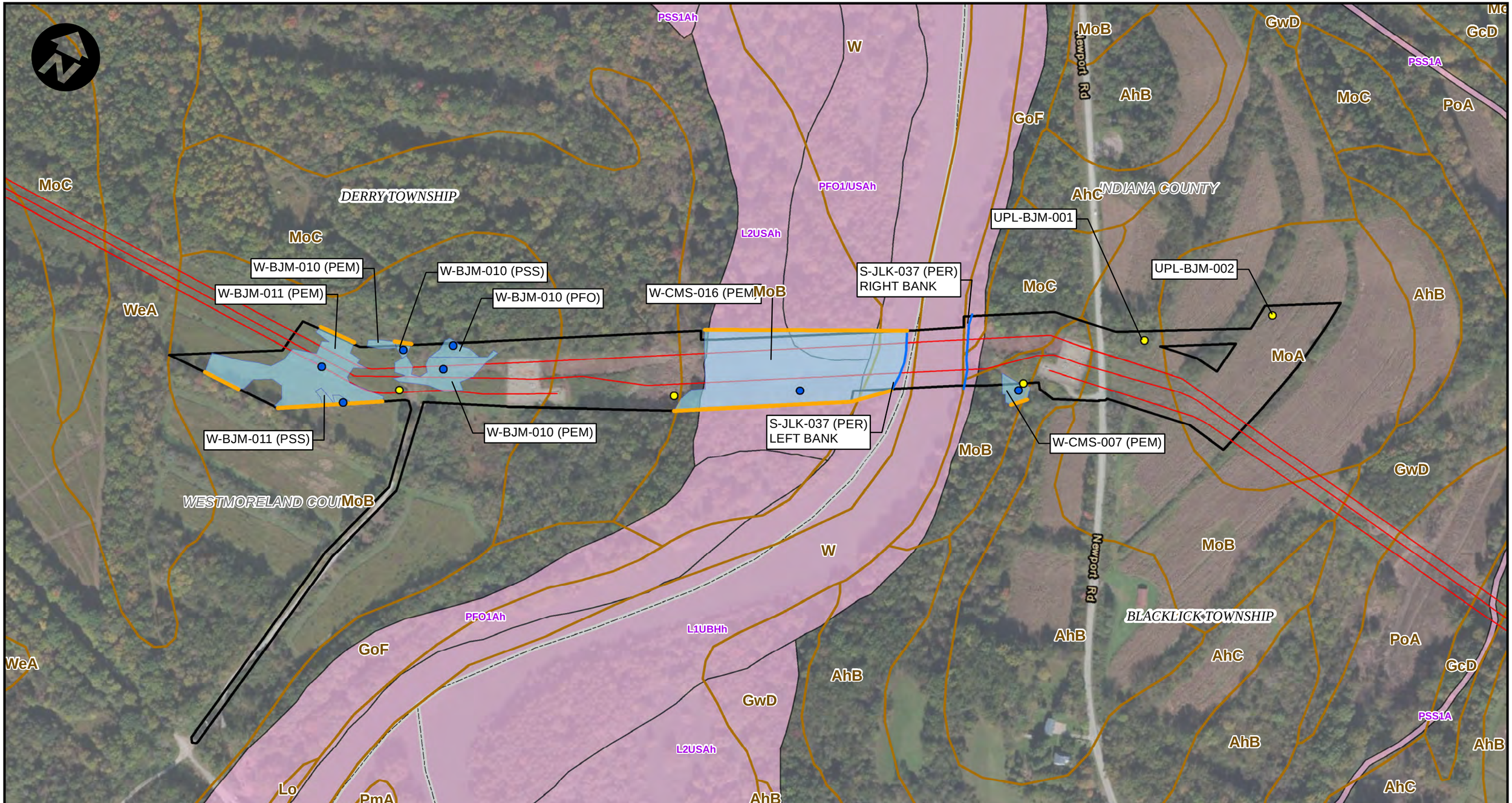
AECOM

FOSTER PLAZA 6
681 ANDERSEN DRIVE, SUITE 120
PITTSBURGH, PA 15220

ENBRIDGE

TEXAS EASTERN TRANSMISSION, LP

PREPARED BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	DRAWING NO.
JAS	MAB	SLH	5/5/2020	1 " = 2,000 '	**FIGURE 1**
			Page 1 of 1	PROJECT NO. 60594173	LOCATION MAP 2020 INTEGRITY PROGRAM CONEMAUGH RIVER CROSSING PROJECT INDIANA AND WESTMORELAND COUNTIES, PENNSYLVANIA



BASE MAP SOURCES:
AERIAL IMAGERY: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS
SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

NWI WETLAND: USFWS, NATIONAL WETLANDS INVENTORY FOR PA, POLYGON, 10/15/2018

SOIL MAP UNIT: USDA-NRCS, SOIL SURVEY GEOGRAPHIC DATABASE FOR WESTMORELAND AND INDIANA COUNTIES, PA, 9/2018

Legend

- STUDY AREA
- SOIL MAP UNIT
- NWI WETLAND
- WETLAND
- PIPELINE
- OPEN-ENDED WETLAND
- WATERCOURSE
- UPLAND DATA POINT
- WETLAND DATA POINT

0 125 250 500 750 1,000 Feet

ENBRIDGE

FIGURE 2
PLAN VIEW

AECOM

CONEMAUGH RIVER CROSSING PROJECT

40° 27' 21.15" N AND 79° 17' 57.81" W
BLACKLICK TOWNSHIP, INDIANA COUNTY
AND DERRY TOWNSHIP, WESTMORELAND COUNTY, PA

Prepared by: JAS	CHECKED BY: MLN	DATE: 5/5/2020	PAGE 1 OF 1

APPENDIX A – FIELD DATA FORMS

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20

Applicant/Owner: Enbridge **State:** PA **Sampling Point:** **W-BJM-011 PEM**

Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range: S** **T** Derry **R**

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.454165 **Long.:** -79.30405 **Datum:** NAD83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
The PEM portion of the PEM/PSS wetland complex identified within the existing pipeline right-of-way that continues outside of the survey area to the north and south. The boundary of the PEM portion of the wetland complex was identified by the dominance of Scirpus cyperinus, Juncus effusus, Typha angustifolia, and a Panicum species located within a slightly depressed area. Based on site conditions and review of previous aerial imagery, it appears the wetland complex drains from the north to the southern tree line. Within the tree line, non-continuous rivets were observed that drained hydrology to the west and could have a potential connection to S-WRA-001.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches): 2	
Water Table Present?	Yes ◉ No ○	Depth (inches): 0	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
Hydrology of this system may have been significantly altered due to the active construction practices within the existing pipeline right-of-way that caused the compaction of soils. ***Frogs and eggs were identified within the surface water of the PEM portion of the wetland located within existing pipeline right-of-way.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-BJM-011 PEM

Tree Stratum (Plot size: None)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5' radius)				
1. *Juncus effusus*	30	☑	31.6%	FACW
2. *Scirpus cyperinus*	25	☑	26.3%	FACW
3. *Typha angustifolia*	20	☑	21.1%	OBL
4. *Andropogon virginicus*	10	☐	10.5%	FACU
5. *Juncus tenuis*	10	☐	10.5%	FAC
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	95	= Total Cover		

Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	20	x 1 =	20	
FACW species	55	x 2 =	110	
FAC species	10	x 3 =	30	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column Totals:	95	(A)	200	(B)

Prevalence Index = B/A = 2.105

Hydrophytic Vegetation Indicators:

- ☑ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Vegetation was naturally problematic and significantly disturbed due to winter conditions and pipeline construction, respectively. Approximately 5 percent of the total cover was open water/soil. Outside of the existing right-of-way, the PEM wetland complex was mostly dominated by Dichanthelium clandestinum, Scirpus cyperinus, Panicum species, Onoclea sensibilis, and Microstegium vimineum.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-BJM-011 PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-8	10YR	5/2	95	10YR	5/6	5	C	M	Silty Loam	
8-16	10YR	5/6	60	10YR	5/2	20	D	M	Silty Clay Loam	
				10YR	5/4	10	C	M		
				10YR	2/2	5	C	M		
				10YR	6/1	5	D	M		

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

The soil profile was identified as being disturbed by previous construction practicies for pipeline installation.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20

Applicant/Owner: Enbridge **State:** PA **Sampling Point:** **W-BJM-011 PSS**

Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** **S** **T** Derry **R**

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.453972 **Long.:** -79.303652 **Datum:** NAD83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
The PSS portion of the PEM/PSS wetland complex was identified in a wet meadow located south of an existing pipeline right-of-way. The boundary of the PSS portion of the wetland complex was identified by the dominance within the tree/sapling layer of Platanus occidentalis, Cornus alba, and Rubus occidentalis with herbaceous layer dominated by Scirpus cyperinus and a Dichanthelium clandestinum. The PSS wetland complex continues to the edge of an existing mowed lane located outside of the survey area to the south and continues along the grass mowed lane as a PEM habitat into the tree line.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches): 1	
Water Table Present?	Yes ◉ No ○	Depth (inches): 0	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
The source of hydrology was identified as precipitation and runoff from the existing right-of-way.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-BJM-011 PSS

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Platanus occidentalis*	15	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	15	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: 15' radius)				
1. *Cornus racemosa*	15	☑	60.0%	FAC
2. *Platanus occidentalis*	10	☑	40.0%	FACW
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	25	= Total Cover		

Shrub Stratum (Plot size: 15' radius)				
1. *Rubus occidentalis*	15	☑	60.0%	UPL
2. *Rosa multiflora*	10	☑	40.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	25	= Total Cover		

Herb Stratum (Plot size: 5' radius)				
1. *Scirpus cyperinus*	30	☑	31.6%	FACW
2. *Dichanthelium clandestinum*	25	☑	26.3%	FAC
3. *Panicum virgatum*	15	☐	15.8%	FAC
4. *Solidago rugosa*	15	☐	15.8%	FAC
5. *Juncus effusus*	10	☐	10.5%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	95	= Total Cover		

Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	70	x 3 =	210
FACU species	10	x 4 =	40
UPL species	15	x 5 =	75
Column Totals:	160 (A)		455 (B)

Prevalence Index = B/A = 2.844

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Vegetation was naturally problematic due to winter conditions.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-BJM-011 PSS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-8	2.5YR	4/1	90	7.5YR	5/4	10	C	M	Silty Loam	
8-16	10YR	5/6	100						Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20

Applicant/Owner: Enbridge **State:** PA **Sampling Point:** **W-BJM-010 PEM**

Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range: S** ___ **T** Derry **R** ___

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.454622 **Long.:** -79.302811 **Datum:** NAD83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
The PEM portion of the PEM/PSS/PFO wetland complex identified within the existing pipeline right-of-way and west of a gravel meter site. The boundary of the wetland complex was identified by the presence of surface water with the dominance of hydrophytic vegetation including Juncus effuses, Scirupus cyperinus, and Tyhpa angustifolia. The boundary of the wetland complex is also located within a slightly concave area that has been previously disturbed by various construction activities. The PEM boundary was extended across a dirt road due to the presence of surface water and similar vegetation being present on both sides. The boundary of the PSS portion of the wetland is open-ended to the north.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☑ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	5
Water Table Present?	Yes ◉ No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
Hydrology of this system may have been significantly altered due to the active construction practices within the existing pipeline right-of-way that caused the compaction of soils. ***Frogs and eggs were identified within the surface water of the wetland.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-BJM-010 PEM

Tree Stratum (Plot size: None)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		
Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. *Juncus effusus*	45	☑	52.9%	FACW
2. *Cyperus esculentus*	25	☑	29.4%	FACW
3. *Typha angustifolia*	15	☐	17.6%	OBL
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	85	= Total Cover		
Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15	
FACW species	70	x 2 =	140	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	85	(A)	155	(B)

Prevalence Index = B/A = 1.824

Hydrophytic Vegetation Indicators:

- ☑ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Vegetation was naturally problematic due to winter conditions. Approximately 15 percent of the total cover was open water/soil.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-BJM-010 PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-10	10YR	4/1	90	7.5YR	4/6	10	C	M	Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

The soil profile was identified as being disturbed by previous construction practicies and shovel refusal was at 10" due to the presence of rock and/or a compacted clay layer.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20

Applicant/Owner: Enbridge **State:** PA **Sampling Point:** **W-BJM-010 PSS**

Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** **S** **T** Derry **R**

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.454618 **Long.:** -79.303314 **Datum:** NAD83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
The PSS portion of the PEM/PSS/PFO wetland complex identified north of the existing pipeline right-of-way that continues to the north and outside of the survey area. The boundary of the PSS portion of the wetland complex was identified by the dominance of Dichanthelium clandestinum with Acer rubrum and Fraxinus pennsylvanica within the shrub/tree layers.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	0
Water Table Present?	Yes ◉ No ○	Depth (inches):	6
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
The source of hydrology was identified as precipitation and runoff from the existing right-of-way.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-BJM-010 PSS

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Fraxinus pennsylvanica*	5	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	5	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: 15' radius)				
1. *Fraxinus pennsylvanica*	15	☑	60.0%	FACW
2. *Acer rubrum*	10	☑	40.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	25	= Total Cover		
Shrub Stratum (Plot size: 15' radius)				
1. *Rosa multiflora*	15	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	15	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. *Dichanthelium clandestinum*	55	☑	55.0%	FAC
2. *Solidago rugosa*	20	☑	20.0%	FAC
3. *Agrimonia parviflora*	15	☐	15.0%	FACW
4. *Microstegium vimineum*	10	☐	10.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	100	= Total Cover		
Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	83.3%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	35	x 2 =	70	
FAC species	95	x 3 =	285	
FACU species	15	x 4 =	60	
UPL species	0	x 5 =	0	
Column Totals:	145	(A)	415	(B)

Prevalence Index = B/A = 2.862

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Vegetation was naturally problematic due to winter conditions.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-BJM-010 PSS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-2	10YR	4/1	90	7.5YR	4/6	10	C	PL	Silty Loam	
2-10	10YR	4/2	100						Silty Clay	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20

Applicant/Owner: Enbridge **State:** PA **Sampling Point:** **W-BJM-010 PFO**

Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range: S** **T** Derry **R**

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.454845 **Long.:** -79.302833 **Datum:** NAD83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
The PFO portion of the PEM/PSS/PFO wetland complex identified along the north of the existing pipeline right-of-way within a slightly concave area along the edge of a mixed deciduous forest. The boundary of the PFO portion of the wetland complex was identified by the presence of water stained leaves, surface water, and concave depressional area.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	2
Water Table Present?	Yes ◉ No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
Hydrology of this system may have been significantly altered due to the active construction practices within the existing pipeline right-of-way that caused the compaction of soils. The construction activity within the ROW could attributed to the inundation of the wetland area within and immediately adjacent to the existing ROW.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-BJM-010 PFO

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Acer rubrum*	35	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	35	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: 15' radius)				
1. *Frangula alnus*	10	☑	66.7%	FAC
2. *Ulmus americana*	5	☑	33.3%	FACW
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	15	= Total Cover		

Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5' radius)				
1. *Microstegium vimineum*	15	☑	100.0%	FAC
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	15	= Total Cover		

Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	65 (A)		190 (B)

Prevalence Index = B/A = 2.923

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Vegetation was naturally problematic due to winter conditions. Approximately 85 percent of the absolute cover within the PFO wetland habitat was exposed soil/ground.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-BJM-010 PFO

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-8	10YR	4/2	100						Silty Loam	
8-18	10YR	5/2	95	10YR	5/6	5	C	M	Silty Clay	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20

Applicant/Owner: Enbridge **State:** PA **Sampling Point:** **W-BJM-010/011 UPL**

Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range: S** **T** Derry **R**

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.45429 **Long.:** -79.303149 **Datum:** NAD83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:
Upland reference to W-BJM-010 and W-BJM-011 located within an existing pipeline right-of-way between and situated between both wetland complexes.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
No sources of hydrology were observed.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-BJM-010/011 UPL

Tree Stratum (Plot size: None)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5' radius)				
1. *Trifolium repens*	35	☑	35.0%	FACU
2. *Trifolium pratense*	25	☑	25.0%	FACU
3. *Plantago lanceolata*	15	☐	15.0%	UPL
4. *Phleum pratense*	15	☐	15.0%	FACU
5. *Dactylis glomerata*	10	☐	10.0%	FACU
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	100	= Total Cover		

Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	85	x 4 =	340
UPL species	15	x 5 =	75
Column Totals:	100 (A)		415 (B)

Prevalence Index = B/A = 4.150

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Vegetation was naturally problematic and significantly disturbed due to winter conditions and pipeline construction activities, respectively.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-BJM-010/011 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-14	10YR 4/3	100					Silty Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

The soil profile was identified as being disturbed by previous pipeline instllation and shovel refusal at 14" was due to compact soils/rock layer.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 24-Jun-16

Applicant/Owner: Spectra Energy **State:** PA **Sampling Point:** **W-CMS-016 PEM**

Investigator(s): CMS, CMG **Section, Township, Range: S** **T** Derry **R**

Landform (hillslope, terrace, etc.): Toeslope/Floodplain **Local relief (concave, convex, none):** none **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.455857 **Long.:** -79.299096 **Datum:** NAD83

Soil Map Unit Name: MoB - Monongahela silt loam, 3 to 8 percent slopes **NWI classification:** L2USAh

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
PEM wetland located at the toe-of-slope and within the floodplain of the Conemaugh River. Feature is depicted as an NWI and extends south and north outside of the study area and to the River. Boundary follows vegetative community dominated by Fallopia japonica and Chamaedaphne calyculata, drainage patterns, and low chroma, mottled soils. Vegetation is disturbed by pipeline construction and mowing. Portions of the system are planted with Secale cereale and also contain Elymus repens.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary source of hydrology: surface water runoff collection and flood flow from Conemaugh River

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-CMS-016 PEM

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		
Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5 ft. Radius)				
1. *Fallopia japonica*	30	☑	44.8%	FACU
2. *Chamaedaphne calyculata*	20	☑	29.9%	OBL
3. *Pilea pumila*	5	☐	7.5%	FACW
4. *Phleum pratense*	3	☐	4.5%	FACU
5. *Carex vulpinoidea*	3	☐	4.5%	OBL
6. *Brassica nigra*	3	☐	4.5%	UPL
7. *Solidago canadensis*	3	☐	4.5%	FACU
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	67	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	23	x 1 =	23	
FACW species	5	x 2 =	10	
FAC species	0	x 3 =	0	
FACU species	36	x 4 =	144	
UPL species	3	x 5 =	15	
Column Totals:	67	(A)	192	(B)

Prevalence Index = B/A = 2.866

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation disturbed by mowing and pipeline construction. Portions of system planted with rye (Secale cereale) and also contain quackgrass (Elymus repens).

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-CMS-016 PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-4	10YR	4/2	90	10YR	5/8	10	C	M	Clay Loam	
4-18	10YR	5/2	80	10YR	5/6	20	C	M	Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 24-Jun-16

Applicant/Owner: Spectra Energy **State:** PA **Sampling Point:** **W-CMS-016 UPL**

Investigator(s): CMS, CMG **Section, Township, Range: S** **T** Derry **R**

Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** none **Slope:** 5.0% / 2.9 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.455322 **Long.:** -79.300344 **Datum:** NAD83

Soil Map Unit Name: MoC - Monongahela silt loam, 8 to 15 percent slopes **NWI classification:** N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	
Hydric Soil Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:
Upland area located on a hillslope east of a compressor station. Vegetation disturbed by mowing and pipeline construction.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-CMS-016 UPL

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5 ft. Radius)				
1. *Solidago nemoralis*	35	☑	36.5%	UPL
2. *Apocynum cannabinum*	15	☑	15.6%	FACU
3. *Solidago canadensis*	10	☐	10.4%	FACU
4. *Toxicodendron radicans*	7	☐	7.3%	FAC
5. *Oxalis stricta*	7	☐	7.3%	FACU
6. *Rumex crispus*	5	☐	5.2%	FAC
7. *Chamaedaphne calyculata*	5	☐	5.2%	OBL
8. *Juncus tenuis*	3	☐	3.1%	FAC
9. *Rubus allegheniensis*	3	☐	3.1%	FACU
10. *Taraxacum officinale*	3	☐	3.1%	FACU
11. *Fallopia japonica*	3	☐	3.1%	FACU
12.	0	☐	0.0%	
	96	= Total Cover		

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	0.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	5	x 1 =	5	
FACW species	0	x 2 =	0	
FAC species	15	x 3 =	45	
FACU species	41	x 4 =	164	
UPL species	35	x 5 =	175	
Column Totals:	96	(A)	389	(B)

Prevalence Index = B/A = 4.052

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation disturbed by mowing and pipeline construction.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-CMS-016 UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					Clay Loam	
8-16	10YR 5/6	70	10YR 4/3	30	D	M	Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Gravel refusal at 16"

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Indiana **Sampling Date:** 23-Jun-16

Applicant/Owner: Spectra Energy **State:** PA **Sampling Point:** **W-CMS-007-PEM**

Investigator(s): CMG, CMS **Section, Township, Range: S** **T** Blacklick **R**

Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** none **Slope:** 2.5% / 1.4 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.456716 **Long.:** -79.296892 **Datum:** NAD83

Soil Map Unit Name: MoB - Monongahela silt loam, 2 to 6 percent slopes **NWI classification:** N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
Hillslope PEM wetland that originates from a groundwater seep. Boundary follows drainage patterns, low chroma mottled soils, and a vegetative community dominated by Fallopia japonica, Juncus tenuis, and Carex crinita. Surrounding hillside also exhibited a Fallopia japonica community, but lacked prevalence of other hydrophytic species, indicators of hydrology, and gley soils.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches): 0.25	
Water Table Present?	Yes ◉ No ○	Depth (inches): 8	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary source of hydrology: Groundwater seep and surface water runoff collection

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-CMS-007-PEM

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		
Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5 ft. Radius)				
1. *Fallopia japonica*	40	☑	24.7%	FACU
2. *Juncus tenuis*	25	☑	15.4%	FAC
3. *Carex crinita*	25	☑	15.4%	OBL
4. *Juncus effusus*	20	☐	12.3%	FACW
5. *Phalaris arundinacea*	15	☐	9.3%	FACW
6. *Impatiens capensis*	10	☐	6.2%	FACW
7. *Solidago latissimifolia*	10	☐	6.2%	OBL
8. *Mentha arvensis*	5	☐	3.1%	FACW
9. *Toxicodendron radicans*	5	☐	3.1%	FAC
10. *Eupatorium perfoliatum*	5	☐	3.1%	FACW
11. *Persicaria hydropiper*	2	☐	1.2%	OBL
12.	0	☐	0.0%	
	162	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	66.7%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	37	x 1 =	37	
FACW species	55	x 2 =	110	
FAC species	30	x 3 =	90	
FACU species	40	x 4 =	160	
UPL species	0	x 5 =	0	
Column Totals:	162	(A)	397	(B)

Prevalence Index = B/A = 2.451

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-CMS-007-PEM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-14	5GY	4/1	75	10YR	5/8	25	C	M	Loamy Clay	Gley 1

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☑ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Highly saturated. Shovel refusal at 14" due to gravel.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Indiana **Sampling Date:** 23-Jun-16

Applicant/Owner: Spectra Energy **State:** PA **Sampling Point:** **W-CMS-007-UPL**

Investigator(s): CMG, CMS **Section, Township, Range: S** **T** Blacklick **R**

Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** none **Slope:** 2.5% / 1.4 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.456789 **Long.:** -79.296876 **Datum:** NAD83

Soil Map Unit Name: MoB - Monongahela silt loam, 2 to 6 percent slopes **NWI classification:** N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:
Upland data point located on a hillslope dominated by Fallopia japonica. Hydric soils are present; area appears to have been disturbed by construction in the recent past.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: W-CMS-007-UPL

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5 ft. Radius)				
1. *Fallopia japonica*	60	☑	48.0%	FACU
2. *Poa annua*	25	☑	20.0%	FACU
3. *Solidago nemoralis*	15	☐	12.0%	UPL
4. *Rosa multiflora*	15	☐	12.0%	FACU
5. *Acorus calamus*	5	☐	4.0%	OBL
6. *Fallopia convolvulus*	5	☐	4.0%	FACU
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	125	= Total Cover		

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	0.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	5	x 1 =	5	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	105	x 4 =	420	
UPL species	15	x 5 =	75	
Column Totals:	125	(A)	500	(B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-CMS-007-UPL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-2	10YR	4/3	100						Clay Loam	
2-6	10YR	4/2	98	10YR	5/6	2	C	M	Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Shovel refusal at 6" due to gravel

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Indiana **Sampling Date:** 05-Mar-20

Applicant/Owner: Enbridge **State:** PA **Sampling Point:** **UPL-BJM-001**

Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** **S** **T** Blacklick **R**

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.457595 **Long.:** -79.295877 **Datum:** NAD83

Soil Map Unit Name: Monongahela silt loam, 0 to 3 percent slopes (MoA) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉		
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?**	Yes ○ No ◉
Wetland Hydrology Present?	Yes ◉ No ○		

Remarks:
The sample point was collected within a depression area surrounded by mixed hardwood forest strip that adjoins monocultural corn fields. The depression area collects surface water from the adjacent farm fields that drains into a concave swale that discharges into this depression area that had the presence of surface water. Due to the lack of dominant hydrophytic vegetation, it was determined that the depression area within the survey boundary was associated with an upland community and the presence of hydrology was likely attributed to recent rainfall.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	4
Water Table Present?	Yes ◉ No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

NA

Remarks:

According the AGCIS Wet Climatic Data (Bush Valley 0.5 SE,PA), over the past seven days the weather station recorded an accumulation of precipitation of approximately 0.56 inches. As a result and in-combination of lack of hydrophytic vegetation, the presence of surface water is likely attributed to recent rainfall events.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL-BJM-001

Tree Stratum (Plot size: None)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		
Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5' radius)				
1. *Stellaria media*	45	☑	75.0%	UPL
2. *Alliaria petiolata*	10	☐	16.7%	FACU
3. *Barbarea vulgaris*	5	☐	8.3%	FACU
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	60	= Total Cover		
Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	0.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	15	x 4 =	60	
UPL species	45	x 5 =	225	
Column Totals:	60	(A)	285	(B)

Prevalence Index = B/A = 4.750

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Over 40 percent of sample area was bare/open ground. Vegetation was identified as naturally problematic due to winter conditions; however, the species within the sample area could be identified based on the visible characteristics.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL-BJM-001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-4	10YR 4/1	85	10YR 4/4	15	C	M	Silty Loam	
4-8	10YR 4/2	90	7.5YR 4/4	10	C	M	Silty Loam	
8-18	10YR 5/3	80	10YR 4/1	20	D	M	Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Indiana **Sampling Date:** 05-Mar-20

Applicant/Owner: Enbridge **State:** PA **Sampling Point:** **UPL-BJM-002**

Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range: S** **T** Blacklick **R**

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °

Subregion (LRR or MLRA): LRR N **Lat.:** 40.458291 **Long.:** -79.29471 **Datum:** NAD83

Soil Map Unit Name: Monongahela silt loam, 0 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☑ **, Soil** ☑ **, or Hydrology** ☑ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☑ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?**	Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉		
Wetland Hydrology Present?	Yes ◉ No ○		

Remarks:
The sample point was collected within a slightly concave area of an monocultural corn field that displayed the presence of surface water during the site investigation. The density of the remaining corn stalks appeared to be less abundant than the areas that lacked the presence of surface water. Therefore, this sample point reflects the upland conditions due to the lack of hydrophytic vegetation and hydric soils.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	5
Water Table Present?	Yes ◉ No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
According the AGCIS Wet Climatic Data, over the past seven days there has been an accumulation of 0.56 inches of precipitation. As a result, the presence of surface water is likely attributed to recent rainfall events.

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL-BJM-002

Tree Stratum (Plot size: None)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5' radius)				
1. *Setaria faberi*	25	☑	45.5%	UPL
2. *Aster sp.*	5	☐	9.1%	
3. *Panicum virgatum*	25	☑	45.5%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	55	= Total Cover		

Woody Vine Stratum (Plot size: None)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	25	x 3 =	75	
FACU species	0	x 4 =	0	
UPL species	25	x 5 =	125	
Column Totals:	50	(A)	200	(B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Vegetation was significantly disturbed by agricultural practices and winter conditions. Therefore, identification of Aster sp was not possible. The remaining 45 total cover of the sample plot was bare soil and/or corn.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL-BJM-002

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-8	2.5YR 4/2	100					Silty Loam	
8-18	2.5YR 5/6	100					Silty Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

The soil profile was identified as being disturbed by agricultural practices.

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

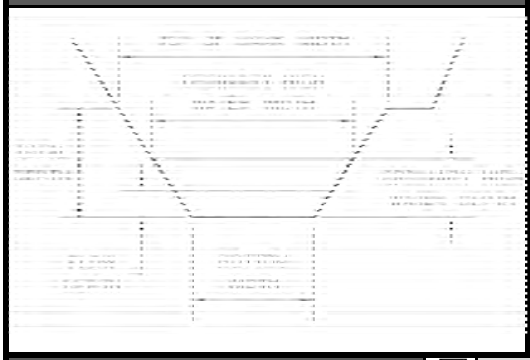
Project/Site:	**Conemaugh River Crossing**	**Stream ID:**	**S-JLK-037 PER**
Applicant/Owner:	Enbridge	State:	Pennsylvania
Investigator(s):	JLK, EMD	City/County:	Indiana, Westmoreland
Sampling Date:	8/19/2016	Township:	Blacklick, Derry
Stream Name:	Conemaugh River	Latitude:	40.456604
Drainage Area (mi^2):	>100	Longitude:	-79.297884
Slope Category:	(1) Low Gradient	Open-Ended?	☑ Upstream ☑ Downstream
FERC Designation:	N/A	Delineation Type:	☐ Centerline ☑ R/L Banks

Stream Description:

Conemaugh River.

Stream Subsystem		Stream Origin		Predominant Surrounding Landuse			
☑	Perennial	☐	Culvert Discharge	☑	Forest	☐	Commercial
☐	Ephemeral	☐	Pond Discharge	☐	Field/Pasture	☐	Industrial
☐	Intermittent	☐	Swamp, Bog or Wetland	☑	Agricultural	☐	Residential
☐	Tidal	☐	Spring Fed	☑	Other	Pipeline ROW	
☐		☑	Mixture of Origins	**Heavy rain in the last 7 days?**	☑ Yes	☐ No	
Other:		☐	Surface Water Runoff	**Turbidity?**	☑ Clear	Other:	
Flow Present?	☑ Yes	☐ No		**Flow Direction:**	North		

For linear projects, provide dimensions at centerline of stream crossing



Right bank/Left bank facing downstream			
Right Bank (Do not include flow depth)	Horiz.	20.00	Ft.
	Vert.	10.00	Ft.
Left Bank (Do not include flow depth)	Horiz.	25.00	Ft.
	Vert.	5.00	Ft.
Water/Flow Depth		5.00	Ft.
Bottom of Channel Width		150.00	Ft.
Ordinary High Water Depth		5.00	Ft.
Top of Bank Width		185.00	Ft.
Ordinary High Water Width		185.00	Ft.
Total Depth		10.00	Ft.

Stream Morphology		
☐	Riffle %	
☑	Pool %	100
☐	Run %	

Canopy Cover	
☑	Open
☐	Partly Open
☐	Shaded

Is Channel Naturalized?			
☑	Yes	☐	No

Fin Fish Present?			
☑	Yes	☐	No

Macroinvertebrates Present? ☑ Yes ☐ No

☑	Ephemeroptera	☑	Plecoptera	☑	Trichpotera	☐	Other:

Aquatic Vegetation - Indicate Dominant Cover Type

☑	N/A	☐	Rooted Emergent	☐	Rooted Floating	☐	Attached Algae
		☐	Rooted Submergent	☐	Floating Algae	☐	Free Floating

Portion of Stream with Aquatic Vegetation (%):

Riparian Buffer Veg. (60 Ft.) - Indicate Dominant Cover Type And Species

☑	Trees:	*Platanus occidentalis*	☐	Grasses:	
☐	Shrubs:		☑	Herbaceous:	*Fallopia japonica*

Inorganic Substrate Components (Add to 100%)

Type	Diameter	Composition %
Bedrock	-	
Boulder	10" +	20
Cobble	2.5" - 10"	10
Gravel	0.1" - 2.5"	45
Sand	0.06-2 mm	15
Silt	0.004-0.06 mm	10
Clay	<0.004 mm	

Organic Substrate Components (May be <100)

Type	Characteristics	Composition %
Detritus	Sticks, Wood, Coarse Plant Material	5
Muck-Mud	Black, Very Fine Organic Material	
Marl	Grey, Shell Fragments	

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APPENDIX B – PHOTOGRAPHS

Photograph:	Date:
1	03/05/2020
Feature ID: W-BJM-011	
Direction: East	
Description: Wetland W-BJM-011 PEM	

Photograph:	Date:
2	03/05/2020
Feature ID: W-BJM-011	
Direction: South	
Description: Wetland W-BJM-011 PSS	

Photograph:	Date:
3	03/05/2020
Feature ID: W-BJM-010	
Direction: West	
Description: Wetland W-BJM-010 PEM	

Photograph:	Date:
4	03/05/2020
Feature ID: W-BJM-010	
Direction: South	
Description: Wetland W-BJM-010 PSS	

Photograph:	Date:
5	03/05/2020
Feature ID: W-BJM-010	
Direction: East	
Description: Wetland W-BJM-010 PFO	

Photograph:	Date:
6	06/24/2016
Feature ID: W-CMS-016	
Direction: West	
Description: Wetland W-CMS-016 PEM	

Photograph:	Date:
7	06/23/2016
Feature ID: W-CMS-007	
Direction: West	
Description: Wetland W-CMS-007 PEM	

Photograph:	Date:
8	03/05/2020
Feature ID: UPL-BJM-001	
Direction: Southeast	
Description: Upland UPL-BJM-001 UPL	

Photograph:	Date:
9	03/05/2020
Feature ID: UPL-BJM-002	
Direction: South	
Description: Upland UPL-BJM-002 UPL	

Photograph:	Date:
10	03/05/2020
Feature ID: S-JLK-037	
Direction: Downstream	
Description: Watercourse S-JLK-037 PER	

Attachment S-2

Scientist Resumes

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Mark Benfer
Environmental Scientist

Education
BS/Environmental Resource Management/2008/ Penn State University

Years of Experience
11

Training
38 hour USACE Wetland Delineation Training Program
Hydric Soil Indicators-Field Seminar

Summary
Mr. Benfer's experience includes environmental conservation and wetlands consulting. His expertise in the Marcellus Shale develop includes natural resources and industry compliance. He has managed a field crew to successfully complete conservation projects. More recently, Mr. Benfer has worked in the environmental consulting field, leading watercourse and wetland delineations of resources located on proposed pipeline, well pads, and similar oil and gas improvement projects. His areas of expertise also includes stream and wetland delineation, infiltration testing, erosion and sedimentation inspection, prairie restoration, timber stand improvement, invasive species removal, and portage construction.

Project Experience

Field Lead- Natural Gas Well Pads, Shell Appalachia, Multiple Counties, PA
Conducted wetland and watercourse delineations of proposed well sites to determine the best location for the well pad. Other responsibilities included evaluating the site for constructability, well pad staking, and preparing the wetland report for the ESCGP2 permit application.

Field Lead- Natural Gas Pipeline Wetland and Watercourse Investigation, Howard Energy Partners
Conducted a wetland and watercourse delineations for approximately 20 miles of proposed natural gas pipeline right-of-ways in Bradford and Tioga Counties, PA

Field Lead- Infiltration Testing, Multiple Counties, PA, Shell Appalachia:
Evaluated the rate of infiltration by conducting Falling Head infiltration tests located throughout the proposed natural gas well pad sites and other similar natural gas project sites. Duties also included completing a soil description and submitting an infiltration report in accordance with DEP regulations.

Field Lead I-80 Culvert Replacement Project Drums, PA, PennDot
Assessed approximately 12 miles of I-80 for wetlands and watercourses located within the project area.

Field Lead- I-84 Bridge Replacement Project, Scranton, PA, PennDot
Conducted a wetland and watercourse delineation for approximately 100 acres of proposed project area. Prepared wetland and watercourse data forms as well as Function and Values form for each wetland that was delineated.

Field Lead-Wetland Mitigation Bank Project, Wayne County, PA, RES
Conducted a wetland delineation and watercourse assessment of approximately 31 acres of a conservation easement to be used as a wetland mitigation site.

Field Lead- Natural Gas Pipeline, Multiple Counties, PA, UGI Energy, LLC. Pennsylvania
Conducted a wetland and watercourse delineation for approximately 40 miles of proposed natural gas pipeline right-of-ways.

Field Lead- Project Confidential, Multiple Counties, PA
Ongoing post construction investigation of wetlands and watercourses for post construction impact assessments.

Field Lead- Natural Gas Well Pads, Cabot Oil and Gas, Susquehanna County, PA
Staked out the well pad locations by evaluating the proposed well site for constructability and conducted a wetland and watercourse delineation of the site.

Field Lead- Natural Gas Pipeline: Post-Construction Resource Monitoring, Susquehanna County, PA, Williams Midstream Services, LLC.
Performed post-construction monitoring for wetlands and streams along Williams pipeline projects to determine if pre-construction conditions were restored. Monitoring was conducted at 30 days and one year after the pipeline construction was completed. Completed wetland and stream data forms for each resource within the right of way. Made suggestions for the restoration of resources not meeting pre-construction conditions

T&E Species- Northern Harrier Survey, Tioga Discharge CPF#2, Tioga County, PA, Howard Energy Partners
Assisted in completing a Presence/Absence survey to determine if there are Northern Harriers nesting near the proposed pipeline route. The project included surveying for the harriers twice a day for eight weeks.

Field Lead- Natural Gas Pipeline Wetland and

Watercourse Investigation, Angelina Gathering Company
Conducted a wetland and watercourse delineations for approximately 35 miles of proposed natural gas pipeline right-of-ways in Bradford and Susquehanna Counties, PA and Marshall County, WV.

Erosion and Sedimentation Inspections, Susquehanna County, PA, Cabot Oil and Gas: Conducted evaluations of reclaimed natural gas pipeline areas. Developed and implemented solutions to erosion problems that were detected. Inspection duties included walking each right-of-way and ensuring all the best management practices are in place and completed inspection reports in accordance with DEP regulations.

Experience with a previous employer

Field Lead- National Parks, IA, MN, NE: Projects involved removing invasive plant species from the parks by either treating with chemicals or physically removing the invasive to encourage native vegetation to grow. Over 100 acres of invasive plants were removed. Invasive species removal projects lead to an increase in native vegetation.

Field Lead- Iowa DNR, Multiple Counties, IA: Installed signage along Iowa's major dams warning paddlers of the danger ahead. Constructed take-outs and portages to allow paddlers an easy route around the dam. Managed a crew in the design and development of a campground for paddlers at Lake Red Rock. The campground has provided recreational opportunities for paddlers visiting the area. Created over 5 miles of new hand-carved trails within the state park system.

Field Lead- County Conservation Boards, Multiple Counties, IA: Restored over 200 acres of prairie and oak savanna land through the removal of invasive plant species and prescribed burns. These methods encouraged native plant species to recolonize the area. Used selective cutting methods to improve timber stands. The result of this project was improved habitat for wildlife and healthier trees.

Field Lead- USFWS, Savanna, IL: Protected a population of approximately 30 ornate box turtles by constructing a one square mile enclosure on a wildlife refuge. Removed invasive tree species to encourage the growth of native plant species on sand prairies. Painted and assembled deer blinds for handicapped youth hunt to control the deer population within the wildlife refuge.

Chronology

07/2011 to Present: AECOM, Williamsport, PA
02/2009 to 12/2010: Conservation Corp Iowa, Ames, IA
09/2007 to 05/2008: Weed Ecology Lab, University Park, PA
09/2005 to 05/2007: Dr. Robert Shannon, University Park, PA

Angela J. Chmiel
Environmental Scientist

Education

BS, Environmental Biology, Millersville University, 2005

Professional Affiliations

Society of Women Environmental Professionals
Society of Conservation Biology

Technical Specialties

Environmental Permitting
Wetland Delineations
Threatened and Endangered Species Surveys
Aquatic Macroinvertebrate Surveys

Ms. Chmiel is an environmental scientist with 13 years of experience working with AECOM in the environmental consulting field. She specializes in wetland delineations and permitting, rare, threatened, and endangered species surveys, and aquatic macroinvertebrate surveys. Ms. Chmiel has nationwide experience in wetland delineations and invasive species surveys. Her specific regulatory expertise includes biological assessments, consultations pursuant to Section 7 of the Endangered Species Act and is experienced in the preparation of a variety of environmental reports/applications including United States Army Corps (Clean Water Act Section 404), various state water quality certificates (Clean Water Act Section 401), and Federal Energy Regulatory Commission (FERC). She also has experience using and correcting global positioning system (GPS) for field and mapping purposes.

Experience

Tennessee Gas Pipeline Company, 300 Line Project, New Jersey and Pennsylvania. Wetland biologist and assistant biologist for field surveys of proposed centerline rights-of-way, temporary workspace, meter stations, and access road surveys to complete environmental permitting. Surveys included wetland delineations, water body assessments, T&E species, vernal pool identification and other species of concern habitat assessments, and significant land use types.

Tennessee Gas Pipeline Company, Northeast Upgrade Project, New Jersey and Pennsylvania. Wetland biologist and assistant biologist for field surveys of proposed centerline rights-of-way, temporary workspace, meter stations, and access road surveys to complete environmental permitting. Surveys included wetland delineations, water body assessments, T&E species, vernal pool identification and other species of concern habitat assessments, and significant land use types.

El Paso Gas Corporation, Northeast Expansion, Various Locations, Pennsylvania. Conducted wetland delineations and identified sensitive wildlife habitats in Adams, Berks, Franklin, Lancaster, Northhampton, and York Counties.

Norfolk Southern Railway, Wye Track Railroad, Jersey City, New Jersey. Assisted with field wetland delineations and wetland delineation report preparation. Used a Trimble GPS unit to survey wetland boundaries. Assisted with annual wetland mitigation monitoring.

Sealy (Formerly Stearns & Foster Bedding Co.), Oakeys Brook Mitigation Monitoring, Monmouth County, New Jersey. Conducted surveys to document restoration of wetland vegetation, hydrology, and hydric soils within Oakeys Brook restoration site after first through fourth growing season. Drafted mitigation monitoring reports for years 1 - 4 monitoring. Replanted trees and shrubs lost to deer browse.

Williams Companies, Bay Expansion, Downingtown, Pennsylvania. Authored Resource Report 11 for the Federal Energy Regulatory Commission submittal.

Dominion Resources Inc., Dominion Monroe to Cornwell, Various Locations, West Virginia. Assisted with field wetland delineations and writing the wetland delineation report. Utilized a Trimble GPS unit to survey wetland boundaries. Authored Resource Reports 2 and 3 for the Federal Energy Regulatory Commission submittal.

Liberty Utilities, 2014 Port Ambrose Deepwater Port License Application Support, Various Locations, New York. Team leader/wetland biologist for field surveys of proposed centerline rights of way, temporary workspace, meter stations, plant sites, plant laterals, pipe storage yard, and access road surveys through northeastern New Jersey to complete environmental permitting for the project. Surveys included wetland delineations, water body assessments, threatened and endangered species and other species of concern habitat assessments, and significant land use types. Also, acted as assistant project manager for the Federal Energy Regulatory Commission and US Coast Guard applications.

Williams Companies Inc., Sentinel Expansion, Pennsylvania. Conducted field surveys of proposed and existing linear pipelines throughout southeastern Pennsylvania and north-central New Jersey. Surveys included wetland delineations, waterbody assessments, threatened and endangered and other species of concern habitat assessments, significant land use observations, macroinvertebrate sampling, and invasive species surveys. Assisted with the permitting process.

Williams Companies Inc, Constitution Pipeline Environmental Support, Various Locations, Pennsylvania and New York. Team leader/wetland biologist for field surveys of proposed and existing linear pipelines through Pennsylvania and New York. Surveys included wetland delineations, water body assessments, threatened and endangered and other species of concern habitat assessments, and significant land use observations. Responsible for compiling Pennsylvania joint permit application.

Tennessee Gas Pipeline, Northeast Energy Direct Pipeline - Environmental Assessment and Permitting Servi, Chelmsford, New Hampshire; New York; Massachusetts; Pennsylvania; Connecticut. Assisted with field wetland delineations and writing the wetland delineation report. Utilized a Trimble GPS unit to survey wetland boundaries. Authored Resource Report 2 for the Federal Energy Regulatory Commission submittal. Acted as the liaison between AECOM's resource report writers and the engineers on the project.

Williams Companies, Garden State Expansion Project, Trenton, New Jersey. Assisted with field wetland delineations and writing the wetland delineation report. Utilized a Trimble GPS unit to survey wetland boundaries. Authored Resource Report 3 for the Federal Energy Regulatory Commission submittal.

AECOM

Brian Miller
Senior Ecologist

Education
BS / Environmental Studies / Washington & Jefferson College

Years of Experience
With AECOM / URS: 1 year and 11 months
With other firms: 8 years

Professional History
05/2010 - 05/2012, GAI Consultants, Inc. Lead Environmental Scientist

05/2012 - 05/2013, Rettew Associates, Inc. Environmental Scientist II

05/2013 - 05/2018, GAI Consultants, Inc. Project Environmental Specialist

05/2018 - Present, AECOM Senior Ecologist

Specialized Training
Wetland delineation certified

Safeland certified

Summary
Mr. Miller has almost 10 years of experience as an environmental scientists/consultant for energy related Projects including natural gas pipelines, electric overhead/underground lines, well pads, impoundments, wind farms, temporary above ground and permanent below ground waterlines located within the Northeast and Southeast Regions of the U.S.

During the past eight years, Mr. Miller has provided his assistance on several energy related projects involving environmental permitting (Section 401/404 Clean Water Act, Section 10 Rivers and Harbors Act) and rare species consultation with various agencies in Pennsylvania (PA), West Virginia (WV), Ohio (OH), and Maryland (MD). Additional regulatory assistance on related energy projects included Federal Energy Regulatory Commission (FERC) wetland monitoring and comprehensive environmental reviews.

Furthermore, Mr. Miller also is proficient in completing wetland delineations in accordance to the 1987 USACE Wetland Delineation Manual and Regional Supplements. Over the past several years, he has lead multiple field teams on small to large energy related Projects located in Pennsylvania, Ohio, Virginia, West Virginia, Maryland, and Texas. Additional field experience includes completion of various rapid assessment methodologies (PA Level 2 Rapid Assessments and OH-ORAMS, HEEI, and QHEI), problematic delineations for atypical situations (i.e. undocumented fills), monitoring projects (PASPG-5/USACE and FERC requirements), environmental routing, and habitat assessments / presence and absence surveys for rare plants and animals. A summary of work experiences and projects completed with current project work and experience with previous employers has been provided below.

Current Experience with AECOM
During the past several months with AECOM, Mr. Miller has provided his assistance on several Projects in Pennsylvania and West Virginia. A summary of these project have been provided below.

Lead Ecologist, Electric Utility Projects in Various Counties, OH. Task manager of all ecological activities including field delineation of wetland and stream assessments; Section 404 and Section 401 authorizations; Section 10 requests; as well as threatened and endangered species consultation.

Permitting Lead, Biologist, Permanent Water Intake in Brooke County, WV USACE Permitting assistance for Section 404 and Section 10 authorization; Rare species consultation with USFWS and WVDNR; and Office of Land and Stream (OLS) Application.

Wetland Delineation, Biologist, Delineation for Pipeline Insertion Project in Greene County, PA. Wetland delineation for replacement of existing pipeline and facilities via insertion. Mr.Miller was responsible for completing the wetland delineation report and mapping and coordination.

Permitting Lead, Biologist, for water lines, gas pipelines, and intake facilities in Tioga and Potter Counties, PA. Mr. Miller conducted wetland and stream investigations for a permanent waterline facility located within Tioga and Potter County. Upon completion, Mr. Miller was responsible for the completion of the section 401/404 report authorization under a Joint Permit Application and/or General Permit 5 and 8. Furthermore, Mr. Miller was responsible for managing and updating the project's Geographic Information System (GIS) data.

Wetland Delineation, Biologist, Delineation for Electrical Transmission Line in Portage County, OH. Mr. Miller conducted wetland and stream investigations for an electrical transmission line and substation in Portage County. Upon completion of the environmental survey, Mr. Miller completed a review of the wetland delineation report and findings.

Wetland Delineation, Biologist, Delineation for Electrical Transmission Line in Cambridge, OH. Mr. Miller conducted wetland and stream investigations for an electrical transmission line project in Portage County.

Wetland Delineation, Biologist, Delineation for Electrical Transmission Line in Carrollton, OH. Mr. Miller conducted wetland and stream investigations for an electrical transmission line project in Portage County.

Project Experience with Previous Employers

Mr. Miller has assisted as an environmental consultant for several natural gas pipeline projects located in various counties in PA, WV, OH, and MD. Task associated with these energy related projects include section 401/404 agency consultation and permitting, pipeline/utility line/electric transmission line routing with field and desktop analysis with identifying environmental and constructability constraints. Mr. Miller also coordinated and completed endangered species consultation, wetland delineation and stream identification, and site visits with regulatory agencies for jurisdictional determinations. A summary of previous projects have been provided below.

Pennsylvania

Greene and Washington Counties, PA – Natural Gas Pipeline Projects
Task/Permitting/Field Lead for General Permit Authorizations (GP-5, GP-8, and GP-11) for three individual natural gas pipelines projects submitted to Greene and Washington Counties Conservation Districts and USACE for consultation under Section 401/404 of the Clean Water Act. Additional consultation for rare, threaten, and endangered species was required with Pennsylvania Game Commission (PGC) and United States Fish and Wildlife Service (USFWS) for Indiana Bat and Northern Long Eared Bat. As per USACE conditions, additional monitoring and reporting services were provided for these projects as result of temporary impacts to wetlands.

Allegheny, Washington, Westmoreland, and Greene Counties, PA – Electrical Overhead Line
Permitting/Field Lead for General Permit Authorizations (GP-5 and GP-8) for multiple overhead electrical utility lines and temporary access road submitted to Allegheny County Conservation District with USACE approval for Section 404 as well as Section 10 authorizations. Additional consultation was required for PADEP as result of several projects requiring a Submerged Land Licenses Agreement (SLLA) and several agencies (PGC, USFWS, PA Fish and Boat [PFBC], and PA Department of Conservation and Natural Resources [PADCNR] regarding rare, threaten, and endangered species.

Various Counties, PA – Electrical Overhead Line

Routing/Field Lead associated with the preliminary development of an electrical overhead line as part of a large network to repair, rebuild, and enhance existing utilities lines located near Grove City, PA. Mr. Miller along with representatives from the electric company and construction provided in-field adjustments and suggestions to avoid environmental sensitive areas including wetlands, watercourses, and rare species.

Allegheny, Westmoreland, Greene, and Washington Counties, PA – Natural Gas Pipeline Project
Task/Field lead for Federal Energy Regulatory Commission (FERC) wetland monitoring and reporting for a 110-mile natural gas pipeline (extends into WV). Responsibilities included yearly monitoring and reporting to FERC with designing and managing re-seeding events for impacted wetlands; agency coordination; and invasive species presence/absence surveys.

Cambria County, PA – Natural Gas Pipeline Project
Task/Permitting/Field lead for a Joint Permit Authorization (JPA) of a natural gas pipeline located in Gallitzin State Forest in Cambria County, PA. The Project resulted in an incidental inadvertent return and required additional emergency permitting for an additional access road (GP-8) as well as mitigation for the wild trout stream under a General Permit 1 (GP-1; Fish Habitat Enhancement Structures). Additional services required consultation for State Forest Right of Entry Application resulting in additional environmental survey for invasive species and timber rattle snake habitats within Gallitzin State Forest.

Clarion County, PA – Natural Gas Pipeline and Well Pad Projects
Task/Permitting/Field Lead for General Permit (GP-5 and GP-8) authorization of a natural gas project composed of pipelines, well pads, temporary water lines and intakes, and well pads and impoundments in Clarion County, PA. Services included routing for environmental and constructability constraints with field and desktop reviews; agency coordination including site visits, phone calls, and pre-application meetings with the PaDEP and USACE; and agency consultation for rare, threaten, and endangered species.

Butler County, PA – Natural Gas Pipeline Project
Permitting/Field Lead for General Permit (GP-5 and GP-8) authorization of a natural gas project composed of pipelines and well pads. Environmental services included preparation of permit application, site visits for identification of Eastern Massasauga Rattlesnake habitat with PFBC representative, and field delineations for wetland and streams.

Butler County, PA – Natural Gas Pipeline Project
Public Utility Commission (PUC) / FERC filing Project required Section 401 individual authorization for impacts associated with wetland and streams. Environmental services for this project included wetland and stream delineations, PA level 2 rapid

assessments for riverine and wetland resources, development of environmental assessment report, and preparation of a JPA.

Centre County, PA – Natural Gas Pipeline Project
Task Manger for monitoring and design services for a created wetland that involved coordination and field visits with PA Department of Environmental Protection (PaDEP) and United States Army Core of Engineers (USACE). Project required yearly reporting of monitoring results of wetland creation and establishment of invasive species.

Various Counties, PA – Natural Gas Pipelines, Well Pads, Temporary Waterlines, and Impoundments
Field Lead for wetland and waterbodies delineations and environmental router for avoidance of environmental sensitive areas including wetlands, streams, and rare species habitats. Also provided construction environmental inspector support on multiple temporary waterlines.

Ohio and West Virginia

Marshall, Wetzel, and Kanawha Counties, WV – Natural Gas Pipeline Project
Task/Field lead for Federal Energy Regulatory Commission (FERC) wetland monitoring and reporting for a 110-mile natural gas pipeline (extends into PA). Responsibilities included yearly monitoring and reporting to FERC with designing and managing re-seeding events for impacted wetlands; agency coordination; and invasive species presence/absence surveys.

Marshall and Wetzel Counties, WV – Natural Gas Pipeline Project
Permit/Field lead for a 60-mile pipeline authorized under Pre-Construction Notification (PCN) Nationwide Permit Authorization (NWP) under NWP-12 (utility lines). Environmental services included desktop and field routing for environmental sensitive areas, rare species consultation, and environmental permitting.

Various Counties in Ohio – Natural Gas Pipeline Projects

Performed several wetland and stream investigations associated with natural gas network in various counties in Ohio. Additionally tasks included preparation of Section 404 and 401 authorizations, Section 10 approvals, and Endangered Species Consultation with the United States Fish and Wildlife Service (USFWS) and Ohio Division of Natural Resources (ODNR).

Various Counties in WV and OH – Temporary Water Line Projects associated with Gas Well Developments – Field/Routing Lead for temporary water lines permitted under the USACE Nationwide Permit Authorization Process in Ohio and West Virginia.

Various Counties in WV and OH – Electric Overhead Transmission Projects – Field/Routing Lead for preliminary site assessments and engineering designs of access road, staging areas, and towers locations associated with replacement of overhead electric lines. Additional task included consultation for Section 401 and 404 authorizations, desktop analysis, and rare species consultation.

Electrical Substation Projects in WV and OH – Performed as an environmental lead for wetland and stream investigations, section 401/404 authorizations, and rare species consultation for various counties in WV and Ohio.

Other States

Houston, Texas – Gas Impoundment Site – Field assistant for a wetland delineation and stream identification of a 40-acre gas development site located in the coastal plain area of Texas. Delineations methodology included mosaic classifications of wetland and upland communities

Fairfax, Virginia – Water Quality Assessments - Field technician for water quality sampling and reporting of discharges associated with a confidential coal ash impoundment and energy facility in Virginia.

Various Counties, Virginia – Electric Overhead Line – Field lead for wetland and waterbody delineations for a replacement of an electric transmission line and towers.

Various Counties, Virginia – Natural Gas Pipeline - Field lead f or wetland and waterbody delineations for a pipeline replacement project.

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Eileen Banach Piskura
Biologist

Professional History

Education

MS, Biology, Louisiana State University Shreveport
BS, Biology, Fordham University
Graduate Level coursework in Ecology and Natural History, Drexel University,

Years of Experience

With AECOM 13

Technical Specialties

Major Capital Projects Permitting
Wetland Permitting
Wetland Mitigation
Environmental Impact Assessment & Statements
Threatened & Endangered Species Consultation

Training

Hazardous Waste Operations and Emergency Response (HAZWOPER)

Ms. Piskura has 13 years of technical experience in the environmental consulting field with an emphasis on linear permitting, habitat assessment, threatened & endangered species consultation and erosion and sediment control plans. Ms. Piskura has experience in filings required for utility project permit applications in Massachusetts, Connecticut, Rhode Island, New York, and Pennsylvania. She has also conducted regulatory compliance activities, including environmental monitoring on numerous maintenance, improvement, and new installation projects for natural gas and electrical transmission lines.

Ms. Piskura has experience in the preparation of a variety of environmental permit applications and reports on a wide range of projects requiring an understanding of the environmental permitting process using federal, state, and local criteria. Ms. Piskura's work on utility projects includes preparation of applications for the Federal Energy Regulatory Commission, U.S. Army Corps of Engineers, Pennsylvania Department of Environmental Protection, Connecticut Siting Council, Connecticut Department of Energy and Environmental Protection, Rhode Island Energy Facilities Siting Board, Rhode Island Department of Environmental Management, Massachusetts Wetlands Protection Act, Storm Water Pollution Prevention Plans, and Rhode Island Pollution Discharge Elimination System.

Experience

Enbridge, Inc. Penn Jersey Integrity Project, Pennsylvania. 2016-Present. Ms. Piskura is Deputy Project Manager for the Penn Jersey Integrity Project. Responsibilities include tracking anomaly investigations, desktop review, evaluating and coordinating field survey, evaluating and completing environmental permitting needs, threatened and endangered species coordination, providing site-specific mapping to Environmental Inspection personnel, and close coordination with Enbridge environmental and construction staff. Since the initiation of the Project, Ms. Piskura has reviewed and completed necessary tasks for approximately 1,300 anomaly investigations along Enbridge's right-of-way under the Pennsylvania Programmatic General Permit.

Enbridge, Inc. Seconded Employee in Enbridge's Environmental Projects US Group. 2019-Present. Ms. Piskura is currently a part of Enbridge's Environmental Projects US Group, supporting the Penn Jersey Integrity Program as well as other related maintenance and replacement projects. In addition to tracking and

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evaluating anomaly investigations, Ms. Piskura is assigned as the environmental manager within Enbridge's Environmental Construction Permits Database and is responsible for processing new projects within the Database in coordination with Enbridge Project staff and for providing final Construction Clearance authorization.

Enbridge Inc. Conemaugh River Crossing Project. 2019-Present. Ms. Piskura is currently acting as Deputy Project Manager for the Conemaugh River Crossing Project, which will replace a section of Enbridge's existing Line 12 across the Conemaugh River in Pennsylvania. Ms. Piskura is responsible for US Army Corps of Engineers and Pennsylvania Department of Environmental Protection permit preparation, agency coordination, threatened and endangered species consultation, and Enbridge project team coordination.

Enbridge Inc. EAGL-LAMT DOT 2020 Project. 2019-Present. Ms. Piskura is currently acting as Deputy Project Manager for the EAGL-LAMT DOT 2020 Project, which will replace a section of Enbridge's existing Line 2 in Chester County, Pennsylvania. Ms. Piskura is responsible permit preparation, agency coordination, threatened and endangered species consultation, and Enbridge project team coordination.

Enbridge Inc. Line 19 Kulps Road Project. 2019-2020. Ms. Piskura acted as the Deputy Project Manager for the Line 19 Kulps Road Project, which involved two anomaly repairs requiring enhanced permitting due to impacts to threatened and endangered species habitat. Ms. Piskura ws responsible for US Army Corps of Engineers and Pennsylvania Department of Environmental Protection permit preparation, agency coordination, threatened and endangered species consultation, and Enbridge project team coordination.

Tennessee Gas Pipeline Company, LLC Northeast Energy Direct Project, Pennsylvania, New York, Massachusetts, New Hampshire, and Connecticut. Ms. Piskura managed environmental report preparation and permitting under the Federal Energy Regulatory Commission. Responsible for overall data collection and assimilation for delivery of all resource reports and supporting documents. The project consisted of the construction of approximately 420 miles of pipeline and supporting facilities originating in Pennsylvania and traversing New York, Massachusetts, New Hampshire, and Connecticut.

Tennessee Gas Pipeline Company, LLC Connecticut Expansion Project, New York, Massachusetts, and Connecticut. Ms. Piskura managed environmental report preparation and permitting under the Federal Energy Regulatory Commission, and was the principal author of several resource reports. Supported permitting needs for state wetland applications, and Section 401 Water Quality Certification application. The project consists of approximately 13 miles of new 24 and 36-inch pipeline along existing rights-of ways in New York, Massachusetts, and Connecticut.

Iroquois Gas Transmission System Wright Transfer Compressor Project, New York. Ms. Piskura managed environmental report preparation and permitting under the Federal Energy Regulatory Commission, and was the principal author of several resource reports. The project consists of construction of a new compressor, natural gas cooling and metering facilities in New York.

Constitution Pipeline Company, LLC Constitution Pipeline Project, Pennsylvania and New York. Ms. Piskura served as a project technical specialist for environmental report preparation and permitting under the Federal Energy Regulatory Commission. The project consists of the construction of approximately 123 miles of 30-inch pipeline along green field right-of-way in Pennsylvania and New York.

Tennessee Gas Pipeline Company Northeast Upgrade Project, Pennsylvania and New Jersey. Ms. Piskura was responsible for field investigations and supporting documentation related to wetlands and habitat assessments under the Federal Energy Regulatory Commission as well as state and local municipal review

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401.521.2730 fax

processes. The project consists of the construction of approximately 40 miles of 30-inch pipeline in Pennsylvania and New Jersey.

Josh Singleton
Environmental Scientist

Key skills
Wetland Delineation, Avian Surveying, Post-construction Monitoring for Solar and Wind

Years of experience
8+

Years with AECOM
3

Education
Associate of Science in Wildlife Science and Technology from Penn State University

Mr. Singleton has over 8 years of experience as a staff biologist in environmental and related fields. Experience includes:

- Wetland delineations; Prepare reports summarizing the findings of investigations for submittal to clients and the Pennsylvania Department of Environmental Protection (PADEP);
- Avian migration surveys, bird use counts, breeding bird surveys, raptor nest monitoring;
- Bird and bat mist-netting surveys;
- Post-construction mortality monitoring on active wind and solar facilities;

Professional history

2010 – 2015 Western Ecosystems Technology, Inc (WEST).

2015 – Present AECOM

Selected project experience

Post-Construction Mortality Monitoring, NextEra Energy
Conducted standardized searches for bird and bat fatalities on an operating wind farm. North Sky River, Kern County, CA.

Golden Eagle Radar Project, Next Era Energy
Conducted radar ground-truthing to detect Golden Eagles. North Sky River, Kern County, CA.

Northern Harrier Presence/Absence Survey, HEP Pennsylvania Gathering, LLC
Assisted with field surveys. Tioga CPF#2 Discharge, Lycoming and Tioga Counties, PA, HEP Pennsylvania Gathering, LLC.

Northern Harrier and Short Eared Owl Presence/Absence Survey, Shell Appalachia
Assisted with field surveys. Falcon Ethane Pipeline, Allegheny County, PA, Shell Appalachia, LLC.

Avian Migration Surveys, Next Era Energy
Conducted spring and fall migration surveys in proximity to IBAs and operating wind farms. North Sky River, Kern County, CA.

Bias and Removal Trials, Pattern Energy
Carried out searcher efficiency trials and conducted experiments to determine scavenging rates. Ocotillo Wind Project, Imperial County, CA.

Wetland and Watercourse Investigation, Shell Appalachia
Conduct wetland watercourse delineations at proposed and existing well sites in Elk and Tioga Counties, PA. Shell Appalachia, LLC.

Invasive Species Control and Removal, Panther Swamp, Columbia Gas Corporation
Support the ongoing control/removal of *Phragmites australis* from a wetland mitigation site Pike County, PA.

Phase II Bog Turtle Surveys, Quaker Mitigation Project
Assist with habitat assessment and population survey using survey protocols established by the U.S Fish and Wildlife Service and Pennsylvania Fish and Boat Commission for the Quaker Mitigation Project. Berks County, PA

Bat Mist-Netting and Telemetry, Iberdrola Renewables
Conducted mist-netting surveys for sensitive bat species and radio telemetry on radio-tagged bats. Blue Creek Wind Farm, Van Wert and Paulding Counties, OH.

Post-Construction Monitoring, NextEra Energy
Carried out several duties involved with post-construction monitoring on an active solar farm, including Searcher Efficiency Trials, Carcass Removal Trials, Species Relocation, Avian Surveys and Erosion Control. Desert Sunlight Solar Farm, Riverside County, CA.

Attachment S-3

PA Riverine L2RAP Data Sheets and Mapping

Riverine Assessment Form 1

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

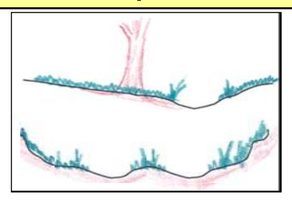
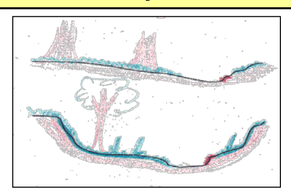
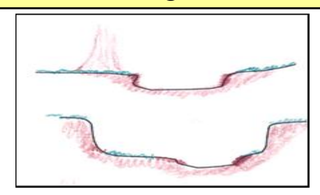
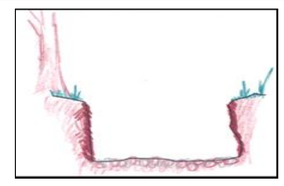
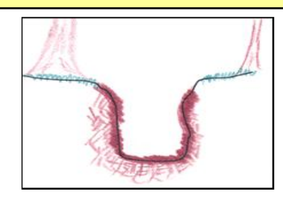
Pennsylvania Department of Environmental Protection

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
					Designated:	Existing:		
60624893	Line 12 Conemaugh River Crossing Project		Westmoreland and Indiana Counties	3/5/2020	WWF	-	S-JLK-037	195'
Latitude	40.456669	Longitude	-79.298122	FGM Level 1 Channel Classification			B	

Evaluator(s)	Stream Name and Information	Notes:
B. Miller	S-JLK-037 PER	

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; 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

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).

	Condition Category																							
	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 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.	
						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				

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	Optimal	High Suboptimal	Low Suboptimal	High Marginal	Low Marginal	High Poor	Low Poor	Side Sub-Index	
Right Side	% Riparian Area:	96%	0%	0%	0%	0%	0%	4%	0.87	Side Sub-Index = SUM(%Areas*Scores)/20
	Score:	18	0	0	0	0	0	2		
	Total Sub-score:	**17.33**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.07**		
	Condition Category	**Optimal**	**High Suboptimal**	**Low Suboptimal**	**High Marginal**	**Low Marginal**	**High Poor**	**Low Poor**		
Left Side	% Riparian Area:	98%	0%	0%	0%	0%	0%	2%	0.88	CI = (Left Side CI + Right Side CI)/2
	Score:	18	0	0	0	0	0	2		
	Total Sub-score:	**17.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.05**		

CI
0.88

Riverine Assessment Form 1 - Page 2

2/4/2017

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 understory.	**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	Optimal	High Suboptimal	Low Suboptimal	High Marginal	Low Marginal	High Poor	Low Poor	Side Sub-Index		
Right Side	% Riparian Area:	79%	0%	0%	0%	8%	0%	13%	**0.75**	**Side Sub-Index = SUM(%Areas*Scores)/20**	
	Score:	18	0	0	0	7	0	2			
	Total Sub-score:	**14.24**	**0.00**	**0.00**	**0.00**	**0.56**	**0.00**	**0.26**			
	Condition Category	**Optimal**	**High Suboptimal**	**Low Suboptimal**	**High Marginal**	**Low Marginal**	**High Poor**	**Low Poor**			
Left Side	% Riparian Area:	58%	0%	0%	0%	26%	0%	16%	**0.63**	**CI = (Left Side CI + Right Side CI)/2**	**CI**
	Score:	18	0	0	0	7	0	2			**0.69**
	Total Sub-score:	**10.52**	**0.00**	**0.00**	**0.00**	**1.80**	**0.00**	**0.32**			

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	**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**		**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:** 20	**1.00**

RIVERINE CONDITION INDEX (RCI)		**RCI**
NOTE: **The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/5 or Ephemeral/Intermittent RCI = (Sum non instream CI's)/4**	**0.76**

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:

Riparian Vegetation Worksheet

Desktop Review

Condition Category	R Size (Ac)	R %	L Size (Ac)	L %
Optimal	172.18	96%	172.81	98%
High Suboptimal	0.00	0%	0.00	0%
Low Suboptimal	0.00	0%	0.00	0%
High Marginal	0.00	0%	0.00	0%
Low Marginal	0.00	0%	0.00	0%
High Poor	0.00	0%	0.00	0%
Low Poor	6.70	4%	4.11	2%
Calculated total area	178.88	100%	176.92	100%

Field View

Condition Category	R Size (Ac)	R %	L Size (Ac)	L %
Optimal	171417.66	96%	172.81	98%
High Suboptimal	0.00	0%	0.00	0%
Low Suboptimal	0.00	0%	0.00	0%
High Marginal	0.00	0%	0.00	0%
Low Marginal	0.00	0%	0.00	0%
High Poor	0.00	0%	0.00	0%
Low Poor	6670.34	4%	4.11	2%
Calculated total area	178088.00	100%	176.92	100%

Entered Total Area **178088.00** **176.92** From shape file for RV (zone)

Calculated total area and Entered Total Area must be equal

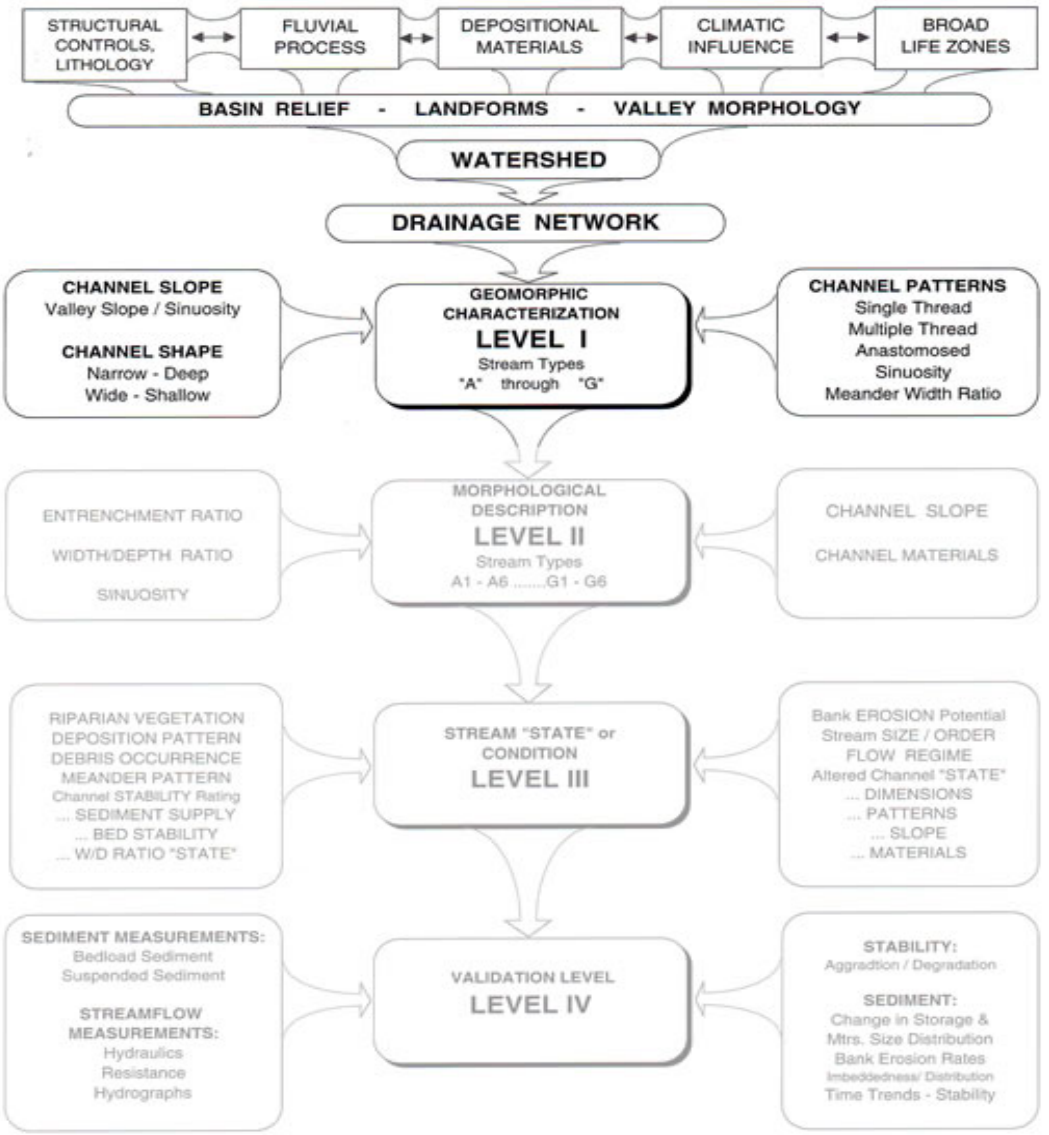
Riparian ZOI Worksheet

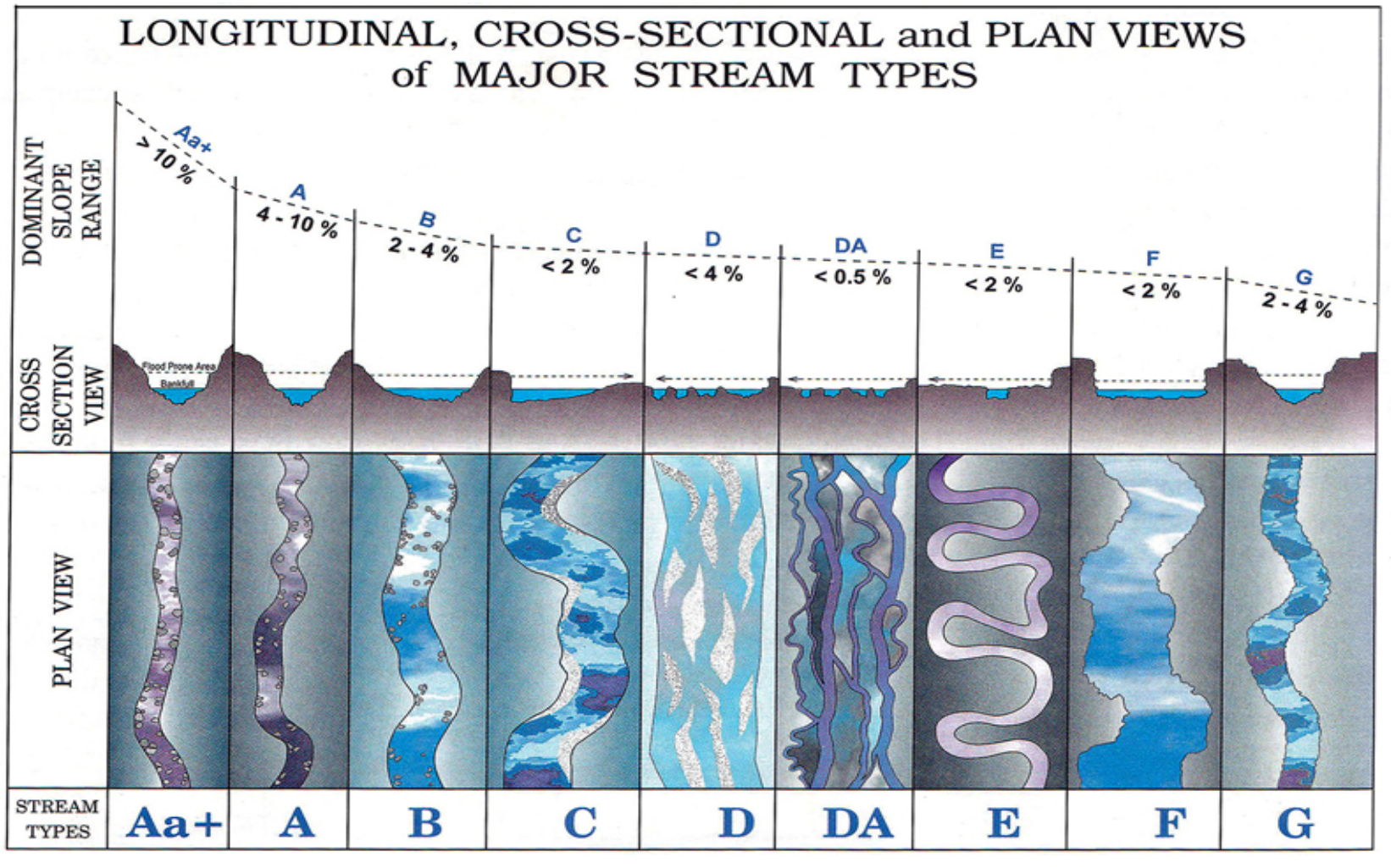
Desktop Review					Field View				
Condition Category	R Size (Ac)	R %	L Size (Ac)	L %	Condition Category	R Size (Ac)	R %	L Size (Ac)	L %
Optimal	20.69	79%	6.49	58%	Optimal	20.69	79%	6.49	58%
High Suboptimal	0.00	0%	0.00	0%	High Suboptimal	0.00	0%	0.00	0%
Low Suboptimal	0.00	0%	0.00	0%	Low Suboptimal	0.00	0%	0.00	0%
High Marginal	0.00	0%	0.00	0%	High Marginal	0.00	0%	0.00	0%
Low Marginal	2.11	8%	2.85	26%	Low Marginal	2.11	8%	2.85	26%
High Poor	0.00	0%	0.00	0%	High Poor	0.00	0%	0.00	0%
Low Poor	3.36	13%	1.76	16%	Low Poor	3.36	13%	1.76	16%
Calculated total area	26.16	100%	11.10	100%	Calculated total area	26.16	100%	11.10	100%

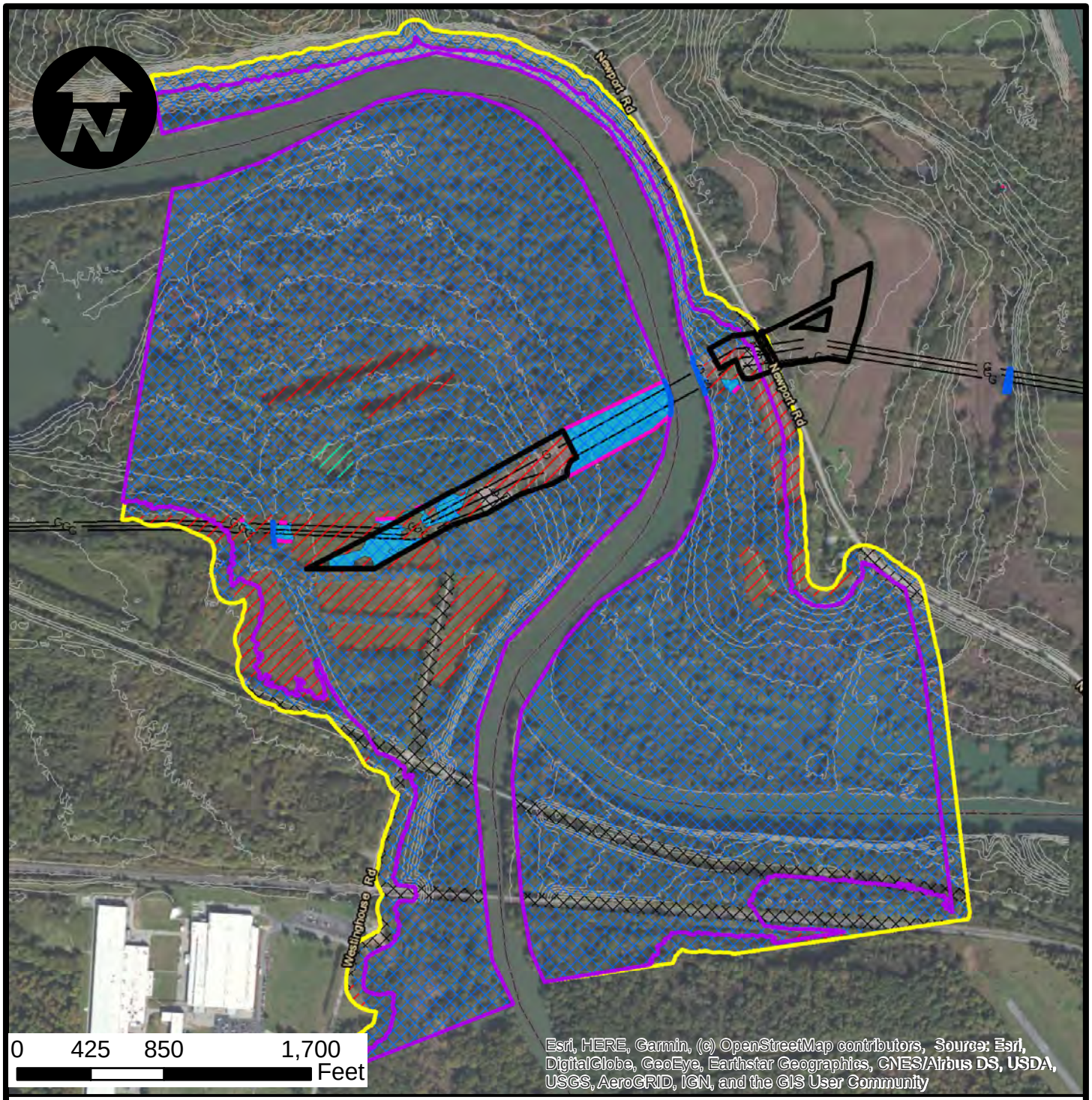
Entered Total Area **26.16** **11.10** From shape file for Riparian ZOI

Calculated total area and Entered Total Area must be equal

http://www.fgmorph.com/fg_5_1.php (details for each classification start on page 15)




LONGITUDINAL, CROSS-SECTIONAL and PLAN VIEWS
of MAJOR STREAM TYPES
DOMINANT SLOPE RANGE
CROSS SECTION VIEW
PLAN VIEW
STREAM TYPES
Aa+
> 10 %
A
4 - 10 %
B
2 - 4 %
C
< 2 %
D
< 4 %
DA
< 0.5 %
E
< 2 %
F
< 2 %
G
2 - 4 %
Flood Prone Area
Bankfull
Aa+
A
B
C
D
DA
E
F
G



LEGEND

- PROPOSED LOD
- EXISTING TETLP PIPELINE
- WATERCOURSE
- OPEN-END
- RIVERINE ZOI
- RIVERINE VEGETATION
- WETLAND
- WETLAND AA
- WETLAND 100-FT ZOI
- WETLAND 300-FT ZOI

CONDITION CATEGORY

- OPTIMAL
- HIGH MARGINAL
- MARGINAL
- POOR

AECOM
FOSTER PLAZA 6
681 ANDERSEN DRIVE, SUITE 120
PITTSBURGH, PA 15220

ENBRIDGE

TEXAS EASTERN TRANSMISSION, LP

PREPARED BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	FIGURE 3
MLN	SLH	KJT	5/19/2020	1 " = 833 feet	STREAM: S-JLK-037 LEVEL 2 RAPID ASSESSMENT PROTOCOL CONEMAUGH RIVER CROSSING PROPOSED 24" HDD PIPELINE
			PAGE NO: Page 4 of 4	PROJECT NO. 60612899	

Attachment S-4

PA Wetland L2RAP Data Sheets and Mapping

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 Pennsyvlania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
60624893	Line 12 Conemaugh River Crossing Project	3/5/20	0.6030	W-BJM-010	0.67

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Resource Identifier:			
B. Miller	40.454614	-79.302808	Classification:	PEM/PSS/PFO	Delineated Area (acres):	0.672094

General Comments:

1. Wetland Zone of Influence Condition Index

	Condition Category																				
	Optimal					Suboptimal					Marginal					Poor					
Wetland Zone of Influence (300 foot area around AA perimeter)	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.			**CI = Total Score/20**
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:	Optimal	High Suboptimal	Low Suboptimal	High Marginal	Low Marginal	High Poor	Low Poor	Total Score:	CI
Scoring:	% ZOI Area:	73%	0%	0%	0%	27%	0%	0%		
	Score:	18	0	0	0	7	0	0		
	Total Sub-score:	13.15	0.00	0.00	0.00	1.89	0.00	0.00	15.03	0.75

Comments:

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 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: Roadbed 0-100 Total score is 2

	Condition Categories																				
	Optimal					Suboptimal					Marginal					Poor					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	**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.		**CI = Total Score/20**
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: Roadbed 100-300 Total score is 2

	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:

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 Pennsyvlania 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: Total % relative cover of all invasives, collectively on site is 15

	Condition Category				
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: Total number of vegetation stressors present - 0

a. Invasive Sub-Score:	12	**Total Score:**	
b. Vegetation Sub-Score:	20	**32**	**0.80**

4. Hydrologic Modification Index

	Condition Category				
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	**1.00**

Comments: Total number of hydrologic modifications present - 0

Score:	20

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	**1.00**

Comments: Total number of sediment stressors present - 0

Score:	20

6. Water Quality Stressor Index

	Condition Category			
a. Eutro- phication 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: Total number of Eutrophication stressors present - 0

	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 / 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: Total number of Contaminant/Toxicity stressors present - 0

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:**	**0.90**

Wetland ZOI Worksheet

Desktop Review			Field View		
Condition Category	Size (Ac)	Percentage	Condition Category	Size (Ac)	Percentage
Optimal	10.27	73%	Optimal	10.27	73%
High Suboptimal	0.00	0%	High Suboptimal	0.00	0%
Low Suboptimal	0.00	0%	Low Suboptimal	0.00	0%
High Marginal	0.00	0%	High Marginal	0.00	0%
Low Marginal	3.79	27%	Low Marginal	3.79	27%
High Poor	0.00	0%	High Poor	0.00	0%
Low Poor	0.00	0%	Low Poor	0.00	0%
Calculated total area	14.06	100%	Calculated total area	14.06	100%

Enter Total Area 14.06 From ZOI shapefile

Calculated total area and Entered Total Area must be equal

2/4/2017

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)
Line 12 Conemaugh River Crossing Project		3/5/2020	B. Miller
Resource Identifier / AA #	**Lat (dd)**	**Long (dd)**	**Notes:**
W-BJM-010	40.454614	-79.302808	#VALUE!

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.	0	4	0	100-300 ft.	0	4	0
2 Lane Paved	0-100 ft.	0	2	0	100-300 ft.	0	2	0
1 Lane Paved	0-100 ft.	0	1	0	100-300 ft.	0	1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	0	2	0	100-300 ft.	0	2	0
Railroad	0-100 ft.	0	2	0	100-300 ft.	0	2	0
Other Roadbeds	0-100 ft.	1	1, 2 or 4	1	100-300 ft.	1	1, 2 or 4	1
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments:

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**

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%
tyan		X							

Total % relative cover of all invasives, collectively on site: 15 **%**

Comments:

Common Invasives/Aggressives List

Code	Common Name	*Scientific*	Status	Code	Common Name	*Scientific*	Status
aggi2	Redtop	*Agrostis gigantea*	FACW	luhe	Water primrose	*Ludwigia hexapetala*	OBLW
algl2	European Alder	*Alnus glutinosa*	FACW	lyvu	Garden loosestrife	*Lysimachia vulgaris*	OBLW
arhi3	Carpetgrass	*Arthraxon hispidus*	FAC-	lysa2	Purple loosestrife	*Lythrum salicaria*	FACW
beth	Japanese barberry	*Berberis thunbergii*	FACW	maqu	European waterclover	*Marsilea quadrifolia*	OBLW
bevu	European barberry	*Berberis vulgaris*	FACW	mivi	Japanese stiltgrass	*Microstegium vimineum*	FAC
butom	Flowering Rush	*Butomus umbellatus*	OBLW	nami2	Water cress	*Nasturtium officinale*	OBLW
calli6	Pond water-starwort	*Callitriche stagnalis*	OBLW	pelo	Low smartweed	*Persicaria longiseta*	FACW
egde	Brazilian waterweed	*Egeria densa*	OBLW	phar	Reed canary grass	*Phalaris arundinacea*	FACW
elan	Russian olive	*Elaeagnus angustifolia*	FACU	phau7	Common Reed	*Phragmites australis*	OBLW
elum	Autumn olive	*Elaeagnus umbellata*	FACU	potr	Rough bluegrass	*Poa trivialis*	FACW
ephi	Hairy willow-herb	*Epilobium hirsutum*	FACW	pocu6	Japanese knotweed	*Polygonum (Faloia) cuspidatum*	FAC-
eppa5	Willow-herb	*Epilobium parviflorum*	FACW	pgpf	Mile-a-minute	*Polygonum perfoliatum*	FAC-
fasa	Giant knotweed	*Fallopia sachalinensis*	OBLW	puera	Kudzu-vine	*Pueraria lobata*	FAC-
gldi	Mudmats	*Glossostigma diandrum*	OBLW	pysp1	Apple/crabapple/pear	*Pyrus sp.*	FAC?
hola	Velvetgrass	*Holcus lanatus*	FAC	rhfr	Glossy Buckthorn	*Rhamnus frangula*	FAC-
huja	Japanese Hops	*Humulus japonicus*	FACU	romu	Multiflora rose	*Rosa multiflora*	FACU
loja	Japanese honeysuckle	*Lonicera japonica*	FAC-	tyan	Cattail (hybrid)	*Typha angustifolia*	OBLW
lomo	Morrow's honeysuckle	*Lonicera morrowii*	NI	tygl	Hybrid cattail	*Typha x glauca*	OBLW
lota	Tartarian honeysuckle	*Lonicera tatarica*					

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

STRESSOR WORKSHEET

2/4/2017

	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.			
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			
Heavy or moderately heavy formation of algal mats			
Other:			
Total Number:		**0**	
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			
Obvious spills, discharges, plumes, odors, etc.			
Acidic drainages (mined sites, quarries, road cuts)			
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			
Fish or wildlife kills or obvious disease or abnormalities observed			
Excessive garbage/dumping			
Other:			
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.***

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 Pennsyvlania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
60624893	Line 12 Conemaugh River Crossing Project	3/5/20	1.3570	W-BJM-011	1.04

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Resource Identifier:			
B. Miller	40.454092	-79.304022	Classification:	PEM/PSS	Delineated Area (acres):	1.0384

General Comments:

1. Wetland Zone of Influence Condition Index

	Condition Category																				
	Optimal					Suboptimal					Marginal					Poor					
Wetland Zone of Influence (300 foot area around AA perimeter)	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.		**CI = Total Score/20**
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:	Optimal	High Suboptimal	Low Suboptimal	High Marginal	Low Marginal	High Poor	Low Poor	Total Score:	CI
Scoring:	% ZOI Area:	64%	0%	0%	0%	36%	0%	0%		
	Score:	18	0	0	0	7	0	0		
	Total Sub-score:	11.45	0.00	0.00	0.00	2.55	0.00	0.00	14.00	0.70

Comments:

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 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: Roadbed 0-100 Total score is 2

	Condition Categories																				
	Optimal					Suboptimal					Marginal					Poor					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	**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.		**CI = Total Score/20**
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: Roadbed 100-300 Total score is 2

	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:

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 Pennsyvlania 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: Total % relative cover of all invasives, collectively on site is 20

	Condition Category				
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: Total number of vegetation stressors present - 0

a. Invasive Sub-Score:	11	**Total Score:**	
b. Vegetation Sub-Score:	20	**31**	**0.78**

4. Hydrologic Modification Index

	Condition Category				
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	**1.00**

Comments: Total number of hydrologic modifications present - 0

Score:	20

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	**1.00**

Comments: Total number of sediment stressors present - 0

Score:	20

6. Water Quality Stressor Index

	Condition Category			
a. Eutro- phication 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: Total number of Eutrophication stressors present - 0

	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 / 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: Total number of Contaminant/Toxicity stressors present - 0

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:**	**0.89**

Wetland ZOI Worksheet

Desktop Review		
Condition Category	Size (Ac)	Percentage
Optimal	9.24	64%
High Suboptimal	0.00	0%
Low Suboptimal	0.00	0%
High Marginal	0.00	0%
Low Marginal	5.29	36%
High Poor	0.00	0%
Low Poor	0.00	0%
Calculated total area	14.53	100%

Field View		
Condition Category	Size (Ac)	Percentage
Optimal	9.24	64%
High Suboptimal	0.00	0%
Low Suboptimal	0.00	0%
High Marginal	0.00	0%
Low Marginal	5.29	36%
High Poor	0.00	0%
Low Poor	0.00	0%
Calculated total area	14.53	100%

Enter Total Area 14.53 From ZOI shapefile

Calculated total area and Entered Total Area must be equal

2/4/2017

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)
Line 12 Conemaugh River Crossing Project		3/5/2020	B. Miller
Resource Identifier / AA #	**Lat (dd)**	**Long (dd)**	**Notes:**
W-BJM-011	40.454092	-79.304022	#VALUE!

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.	0	4	0	100-300 ft.	0	4	0
2 Lane Paved	0-100 ft.	0	2	0	100-300 ft.	0	2	0
1 Lane Paved	0-100 ft.	0	1	0	100-300 ft.	0	1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.	0	2	0	100-300 ft.	0	2	0
Railroad	0-100 ft.	0	2	0	100-300 ft.	0	2	0
Other Roadbeds	0-100 ft.	1	1, 2 or 4	1	100-300 ft.	1	1, 2 or 4	1
Total Scores:	0-100 ft.	2			100-300 ft.	2		

Road Comments:

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**

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%
tyan			X						

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	*Agrostis gigantea*	FACW	luhe	Water primrose	*Ludwigia hexapetala*	OBLW
algl2	European Alder	*Alnus glutinosa*	FACW	lyvu	Garden loosestrife	*Lysimachia vulgaris*	OBLW
arhi3	Carpetgrass	*Arthraxon hispidus*	FAC-	lysa2	Purple loosestrife	*Lythrum salicaria*	FACW
beth	Japanese barberry	*Berberis thunbergii*	FACW	maqu	European waterclover	*Marsilea quadrifolia*	OBLW
bevu	European barberry	*Berberis vulgaris*	FACW	mivi	Japanese stiltgrass	*Microstegium vimineum*	FAC
butom	Flowering Rush	*Butomus umbellatus*	OBLW	nami2	Water cress	*Nasturtium officinale*	OBLW
calli6	Pond water-starwort	*Callitriche stagnalis*	OBLW	pelo	Low smartweed	*Persicaria longiseta*	FACW
egde	Brazilian waterweed	*Egeria densa*	OBLW	phar	Reed canary grass	*Phalaris arundinacea*	FACW
elan	Russian olive	*Elaeagnus angustifolia*	FACU	phau7	Common Reed	*Phragmites australis*	OBLW
elum	Autumn olive	*Elaeagnus umbellata*	FACU	potr	Rough bluegrass	*Poa trivialis*	FACW
ephi	Hairy willow-herb	*Epilobium hirsutum*	FACW	pocu6	Japanese knotweed	*Polygonum (Faloia) cuspidatum*	FAC-
eppa5	Willow-herb	*Epilobium parviflorum*	FACW	pgpf	Mile-a-minute	*Polygonum perfoliatum*	FAC-
fasa	Giant knotweed	*Fallopia sachalinensis*	OBLW	puera	Kudzu-vine	*Pueraria lobata*	FAC-
gldi	Mudmats	*Glossostigma diandrum*	OBLW	pysp1	Apple/crabapple/pear	*Pyrus sp.*	FAC?
hola	Velvetgrass	*Holcus lanatus*	FAC	rhfr	Glossy Buckthorn	*Rhamnus frangula*	FAC-
huja	Japanese Hops	*Humulus japonicus*	FACU	romu	Multiflora rose	*Rosa multiflora*	FACU
loja	Japanese honeysuckle	*Lonicera japonica*	FAC-	tyan	Cattail (hybrid)	*Typha angustifolia*	OBLW
lomo	Morrow's honeysuckle	*Lonicera morrowii*	NI	tygl	Hybrid cattail	*Typha x glauca*	OBLW
lota	Tartarian honeysuckle	*Lonicera tatarica*					

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

STRESSOR WORKSHEET

2/4/2017

	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)			
Obvious spills, discharges, plumes, odors, etc.			
Acidic drainages (mined sites, quarries, road cuts)			
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			
Fish or wildlife kills or obvious disease or abnormalities observed			
Excessive garbage/dumping			
Other:			
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.***

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 Pennsyvlania except those found within the banks of a watercourse.

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)
60624893	Line 12 Conemaugh River Crossing Project	3/5/20	0.0290	W-CMS-016	0.96

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Resource Identifier:			
B. Miller	40.455750	-79.300044	Classification:	PEM	Delineated Area (acres):	0.962934

General Comments:

1. Wetland Zone of Influence Condition Index

	Condition Category																				
	Optimal					Suboptimal					Marginal					Poor					
Wetland Zone of Influence (300 foot area around AA perimeter)	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.		**CI = Total Score/20**
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:	Optimal	High Suboptimal	Low Suboptimal	High Marginal	Low Marginal	High Poor	Low Poor	Total Score:	CI
Scoring:	% ZOI Area:	91%	0%	0%	0%	9%	0%	0%		
	Score:	18	0	0	0	7	0	0		
	Total Sub-score:	16.38	0.00	0.00	0.00	0.63	0.00	0.00	17.01	0.85

Comments:

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 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: Roadbed 0-100 Total score is 0

	Condition Categories																				
	Optimal					Suboptimal					Marginal					Poor					
b. Roadbed Presence (within 100 - 300 foot Wetland ZOI distance)	**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.		**CI = Total Score/20**
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

Comments: Roadbed 100-300 Total score is 0

	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:

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 Pennsyvlania 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: Total % relative cover of all invasives, collectively on site is 0

	Condition Category				
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: Total number of vegetation stressors present - 1

a. Invasive Sub-Score:	20	**Total Score:**	
b. Vegetation Sub-Score:	17	**37**	**0.93**

4. Hydrologic Modification Index

	Condition Category				
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	**1.00**

Comments: Total number of hydrologic modifications present - 0

Score:	20

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	**1.00**

Comments: Total number of sediment stressors present - 0

Score:	20

6. Water Quality Stressor Index

	Condition Category			
a. Eutro- phication 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: Total number of Eutrophication stressors present - 0

	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 / 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: Total number of Contaminant/Toxicity stressors present - 0

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:**	**0.96**

Wetland ZOI Worksheet					
Desktop Review			**Field View**		
Condition Category	Size (Ac)	Percentage	Condition Category	Size (Ac)	Percentage
Optimal	15.46	91%	Optimal	15.46	91%
High Suboptimal	0.00	0%	High Suboptimal	0.00	0%
Low Suboptimal	0.00	0%	Low Suboptimal	0.00	0%
High Marginal	0.00	0%	High Marginal	0.00	0%
Low Marginal	1.53	9%	Low Marginal	1.53	9%
High Poor	0.00	0%	High Poor	0.00	0%
Low Poor	0.00	0%	Low Poor	0.00	0%
Calculated total area	16.99	100%	Calculated total area	16.99	100%

Enter Total Area 16.99 From ZOI shapefile

Calculated total area and Entered Total Area must be equal

Pennsylvania Wetland Condition Level 2 Rapid Assessment
(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? **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	*Agrostis gigantea*	FACW	luhe	Water primrose	*Ludwigia hexapetala*	OBLW
algl2	European Alder	*Alnus glutinosa*	FACW	lyvu	Garden loosestrife	*Lysimachia vulgaris*	OBLW
arhi3	Carpetgrass	*Arthraxon hispidus*	FAC-	lysa2	Purple loosestrife	*Lythrum salicaria*	FACW
beth	Japanese barberry	*Berberis thunbergii*	FACW	maqu	European waterclover	*Marsilea quadrifolia*	OBLW
bevu	European barberry	*Berberis vulgaris*	FACW	mivi	Japanese stiltgrass	*Microstegium vimineum*	FAC
butom	Flowering Rush	*Butomus umbellatus*	OBLW	nami2	Water cress	*Nasturtium officinale*	OBLW
calli6	Pond water-starwort	*Callitriche stagnalis*	OBLW	pelo	Low smartweed	*Persicaria longiseta*	FACW
egde	Brazilian waterweed	*Egeria densa*	OBLW	phar	Reed canary grass	*Phalaris arundinacea*	FACW
elan	Russian olive	*Elaeagnus angustifolia*	FACU	phau7	Common Reed	*Phragmites australis*	OBLW
elum	Autumn olive	*Elaeagnus umbellata*	FACU	potr	Rough bluegrass	*Poa trivialis*	FACW
ephi	Hairy willow-herb	*Epilobium hirsutum*	FACW	pocu6	Japanese knotweed	*Polygonum (Faloia) cuspidatum*	FAC-
eppa5	Willow-herb	*Epilobium parviflorum*	FACW	pgpf	Mile-a-minute	*Polygonum perfoliatum*	FAC-
fasa	Giant knotweed	*Fallopia sachalinensis*	OBLW	puera	Kudzu-vine	*Pueraria lobata*	FAC-
gldi	Mudmats	*Glossostigma diandrum*	OBLW	pysp1	Apple/crabapple/pear	*Pyrus sp.*	FAC?
hola	Velvetgrass	*Holcus lanatus*	FAC	rhfr	Glossy Buckthorn	*Rhamnus frangula*	FAC-
huja	Japanese Hops	*Humulus japonicus*	FACU	romu	Multiflora rose	*Rosa multiflora*	FACU
loja	Japanese honeysuckle	*Lonicera japonica*	FAC-	tyan	Cattail (hybrid)	*Typha angustifolia*	OBLW
lomo	Morrow's honeysuckle	*Lonicera morrowii*	NI	tygl	Hybrid cattail	*Typha x glauca*	OBLW
lota	Tartarian honeysuckle	*Lonicera tatarica*					

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection **STRESSOR WORKSHEET**	2/4/2017 **Occurrence in AA**		
	Y	**#'s**	**N**
Vegetation Alteration			
Mowing	X		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**		

**** 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.***

2/4/2017

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

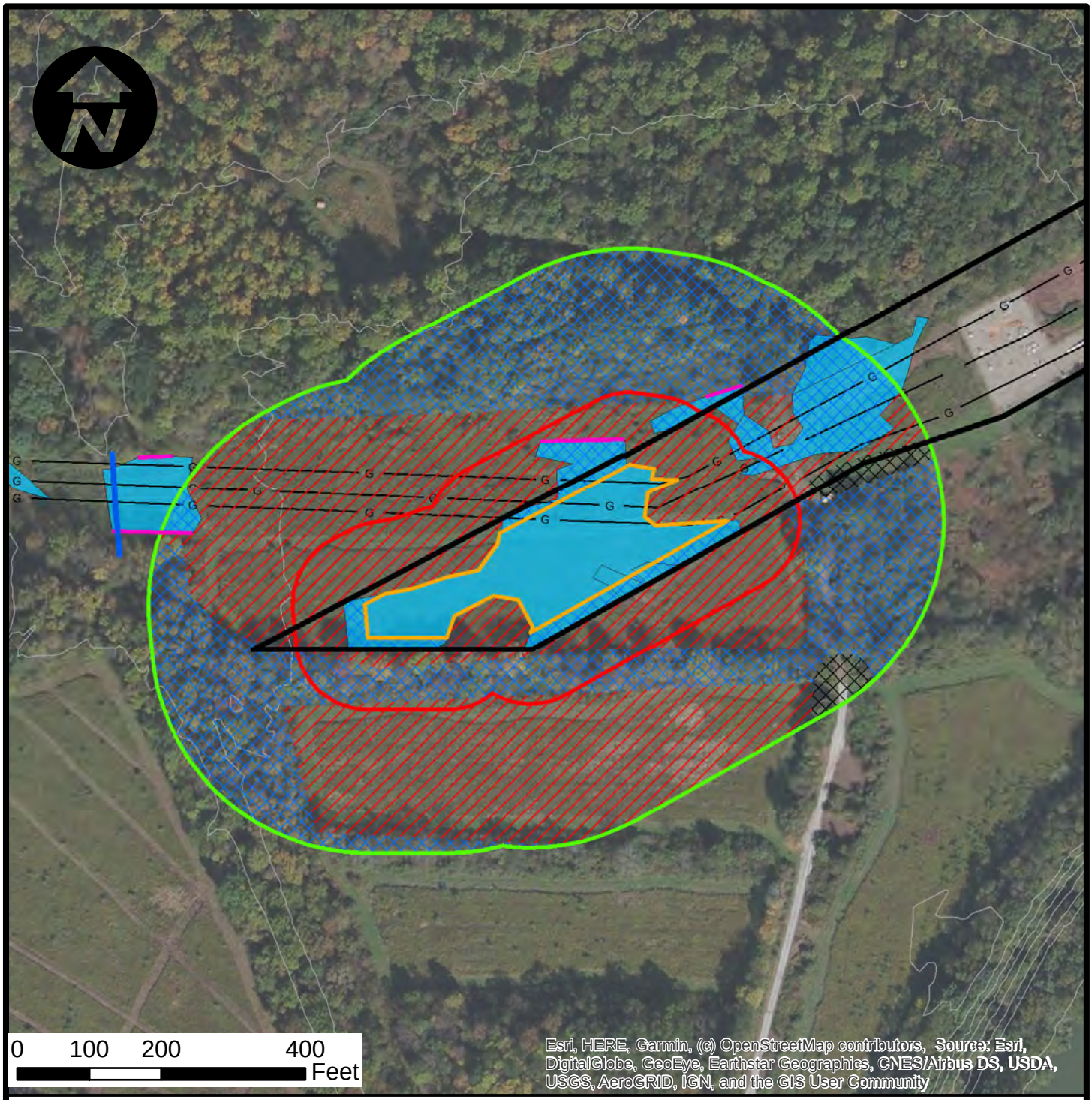
Roadbed Worksheet

Project Name / Identifier		Date	Name(s) of Evaluator(s)
Line 12 Conemaugh River Crossing Project		3/5/2020	B. Miller
Resource Identifier / AA #	**Lat (dd)**	**Long (dd)**	**Notes:**
W-CMS-016	40.455750	-79.300044	#VALUE!

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.	0	4	0	100-300 ft.	0	4	0
2 Lane Paved	0-100 ft.	0	2	0	100-300 ft.	0	2	0
1 Lane Paved	0-100 ft.	0	1	0	100-300 ft.	0	1	0
Gravel Road	0-100 ft.	0	1	0	100-300 ft.	0	1	0
Dirt Road	0-100 ft.	0	2	0	100-300 ft.	0	2	0
Railroad	0-100 ft.	0	2	0	100-300 ft.	0	2	0
Other Roadbeds	0-100 ft.	0	1, 2 or 4	0	100-300 ft.	0	1, 2 or 4	0
Total Scores:	0-100 ft.	0			100-300 ft.	0		

Road Comments:



LEGEND

- PROPOSED LOD
- EXISTING TETLP PIPELINE
- WATERCOURSE
- OPEN-END
- RIVERINE ZOI
- RIVERINE VEGETATION
- WETLAND
- WETLAND AA
- WETLAND 100-FT ZOI
- WETLAND 300-FT ZOI

CONDITION CATEGORY

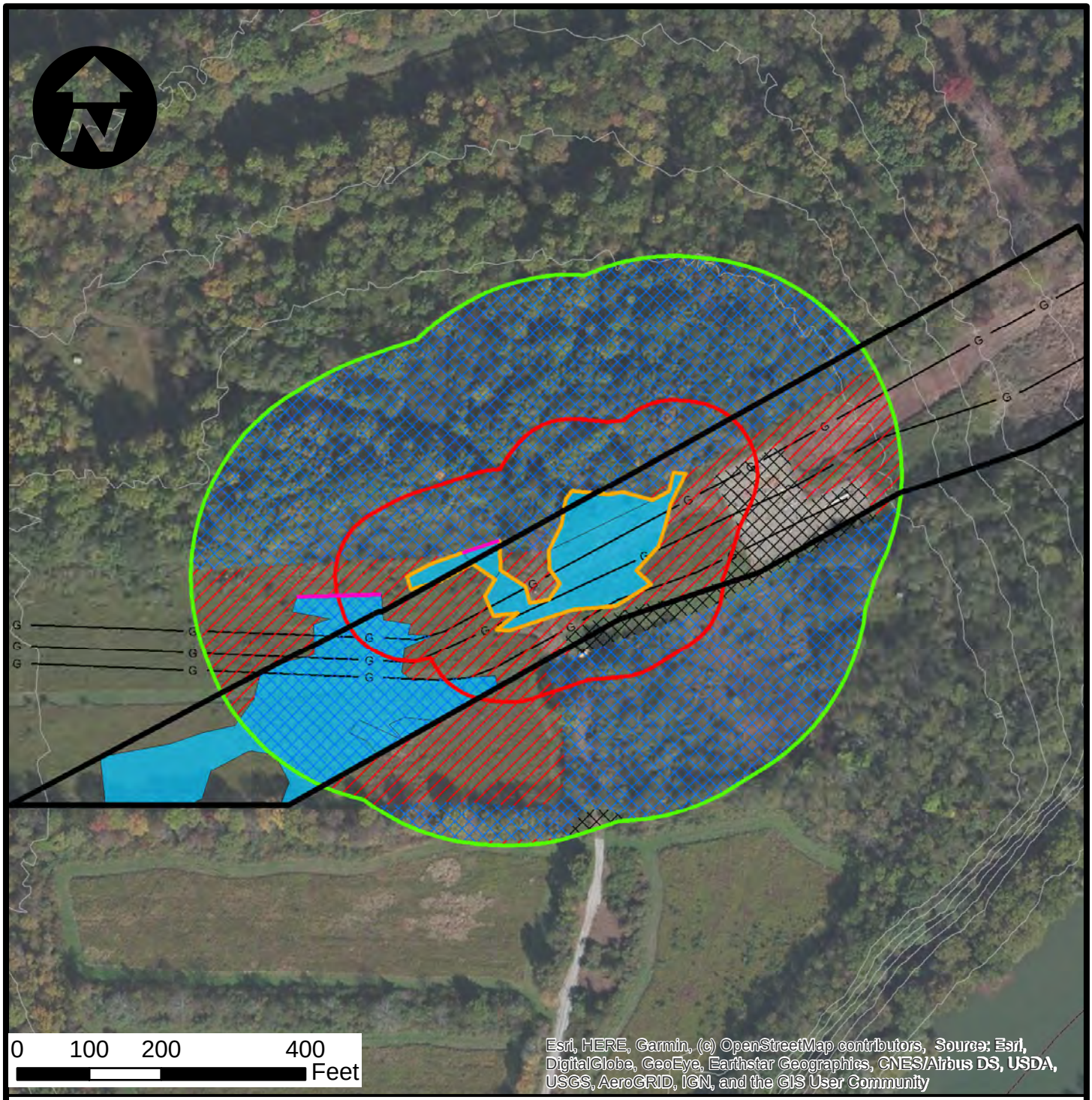
- OPTIMAL
- HIGH MARGINAL
- MARGINAL
- POOR

AECOM
FOSTER PLAZA 6
681 ANDERSEN DRIVE, SUITE 120
PITTSBURGH, PA 15220

ENBRIDGE

TEXAS EASTERN TRANSMISSION, LP

PREPARED BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	FIGURE 3
MLN	SLH	KJT	5/19/2020	1 " = 200 feet	WETLAND: W-BJM-011 LEVEL 2 RAPID ASSESSMENT PROTOCOL CONEMAUGH RIVER CROSSING PROPOSED 24" HDD PIPELINE
			PAGE NO: Page 1 of 4	PROJECT NO. 60612899	



LEGEND

- PROPOSED LOD
- EXISTING TETLP PIPELINE
- WATERCOURSE
- OPEN-END
- RIVERINE ZOI
- RIVERINE VEGETATION
- WETLAND
- WETLAND AA
- WETLAND 100-FT ZOI
- WETLAND 300-FT ZOI

CONDITION CATEGORY

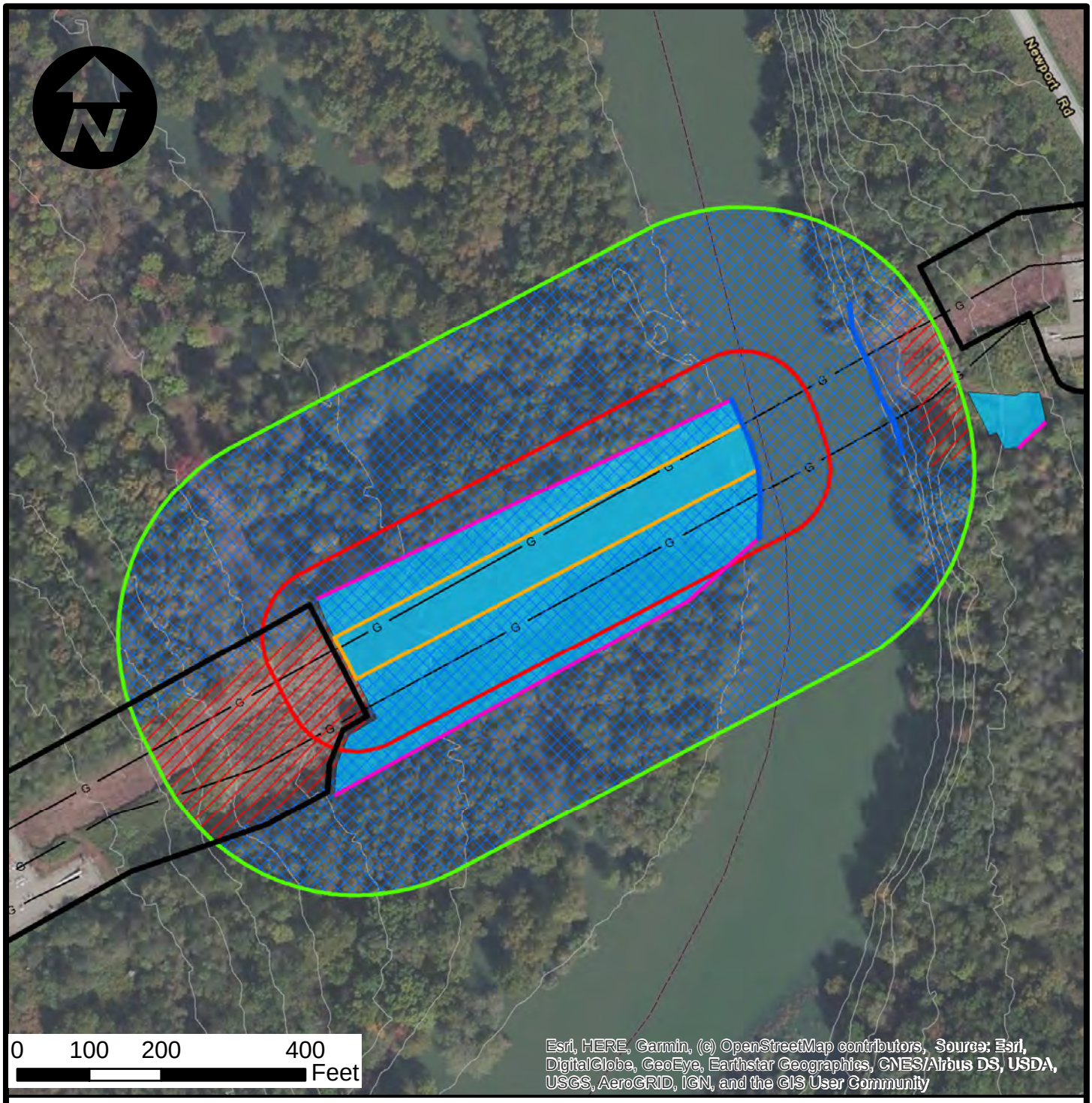
- OPTIMAL
- HIGH MARGINAL
- MARGINAL
- POOR

AECOM
FOSTER PLAZA 6
681 ANDERSEN DRIVE, SUITE 120
PITTSBURGH, PA 15220

ENBRIDGE

TEXAS EASTERN TRANSMISSION, LP

PREPARED BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	FIGURE 3
MLN	SLH	KJT	5/19/2020	1 " = 200 feet	WETLAND: W-BJM-010 LEVEL 2 RAPID ASSESSMENT PROTOCOL CONEMAUGH RIVER CROSSING PROPOSED 24" HDD PIPELINE
			PAGE NO: Page 2 of 4	PROJECT NO. 60612899	



LEGEND

- PROPOSED LOD
- EXISTING TETLP PIPELINE
- WATERCOURSE
- OPEN-END
- RIVERINE ZOI
- RIVERINE VEGETATION
- WETLAND
- WETLAND AA
- WETLAND 100-FT ZOI
- WETLAND 300-FT ZOI

CONDITION CATEGORY

- OPTIMAL
- HIGH MARGINAL
- MARGINAL
- POOR

AECOM
FOSTER PLAZA 6
681 ANDERSEN DRIVE, SUITE 120
PITTSBURGH, PA 15220

ENBRIDGE

TEXAS EASTERN TRANSMISSION, LP

PREPARED BY:	CHECKED BY:	APPROVED BY:	DATE:	SCALE:	FIGURE 3
MLN	SLH	KJT	5/19/2020	1 " = 200 feet	WETLAND: W-CMS-016 LEVEL 2 RAPID ASSESSMENT PROTOCOL CONEMAUGH RIVER CROSSING PROPOSED 24" HDD PIPELINE
			PAGE NO: Page 3 of 4	PROJECT NO. 60612899	

Requirement O

Stormwater Management Analysis and Consistency Letter

AECOM

AECOM
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Williamsport, Pennsylvania
17701
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570 505 1674 tel
570 505 1682 fax

Municipal Stormwater Management Consistency Review
Conemaugh River Crossing Project
Westmoreland County, Pennsylvania

Stormwater Management Analysis
(Please check one of the following)

☐ **No** Municipal Stormwater Management Ordinance has been adopted at this time; therefore no analysis will be undertaken.

☑ The Stormwater Management Analysis of the proposed structure based on the Stormwater Management Ordinance indicated **no** adverse effects.

☐ The Stormwater Management Analysis of the proposed structure based on the Stormwater Management Ordinance indicated the following adverse effects:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Signature David A Shifler

Title V-CHAIRMAN, SECRETARY-TREAS.

Date July 9, 2020

Requirement T

Mitigation Plan

MITIGATION PLAN

As discussed in the preceding Project alternatives analysis, Texas Eastern has incorporated all practicable measures to avoid and minimize environmental impacts associated with the Project. Texas Eastern's construction procedures have also been developed to minimize unavoidable impacts to wetlands. During Project construction two wetlands and one floodway will be crossed via temporary structure and one wetland along with one perennial watercourse will be crossed via horizontal directional drill (HDD) bore. Texas Eastern chose the HDD construction method in order to reduce wetland impacts and eliminate impacts to the riverbanks and bed of the Conemaugh River, as detailed in the alternatives analysis. In addition, the portion of existing Line 12 located in wetland W-CMS-016 and under the Conemaugh River will be capped, grouted, and left in place to avoid impacts associated with removing it. No trenching in wetlands will be required. Using HDD to bore under wetland W-CMS-016 rather than in-situ replacement of Line 12 also eliminates the need to convert forested wetland at the northern end of the ROW, which would be needed for workspace for conventional construction.

The construction procedures used to cross unsaturated wetlands are similar to those used on dry land. Stable temporary work surfaces may be required in wetlands where soils are saturated and unstable. Installing construction mats in the equipment travel lane and work surface is a typical method of site stabilization that Texas Eastern will employ, as necessary. During site preparation activities, vegetation will be cut to ground level within the wetland. Vegetation removal and grading will be limited to the area within the limit of disturbance (LOD), which has been reduced to the minimum necessary for safe construction of the Project. Original topographic conditions and contours will be restored as close to pre-construction as possible after completion of construction.

Within wetland areas a total of 26 trees that meet the regulatory classification of trees will need to be removed, these trees will be cut with the stumps left intact. Twelve of the trees that need to be removed are located in a Palustrine Forested (PFO) wetland within the limits of Texas Eastern's existing easement, which will be maintained following construction resulting in approximately 0.10 acres of permanent wetland conversion. A Palustrine Scrub-shrub (PSS) portion of the same wetland within the existing easement will also be maintained in an emergent state following construction resulting in approximately 0.02 acres of permanent conversion. Both of these conversions will require compensatory mitigation. To provide this, Texas Eastern intends to purchase off-site mitigation credits at a ratio of 2:1 (0.20 acres) for the PFO wetland and a ratio of 1.5:1 (0.03 acres) for the PSS wetland. Details of the plan/agreement will be discussed and shared with PADEP prior to issuance of the permit authorization.

The remainder of trees to be removed are in the HDD pullback area outside of the existing easement, this workspace is required to complete the operation and will be restored following construction and allowed to regenerate. The trees that will be cut in the HDD pullback area are located within wetland W-BJM-

011, classified as Palustrine Emergent (PEM) and Palustrine Scrub-shrub (PSS) and as such, will not constitute a conversion of forested wetland. Construction will be in accordance with the Project Description (see Requirement J) and Texas Eastern's Erosion and Sediment Control Plan (E&SCP) to minimize the potential for adverse effects to wetlands.