TECHNICAL DEFICIENCES RESPONSE LETTER

BERAN ENVIRONMENTAL SERVICES
2322 W Sunbury Rd.
Boyers PA 16020
(724) 735-2766 - Phone
(724) 735-9992 – Fax
edougherty@beranenvironmental.com

April 5, 2024

Pennsylvania Department of Environmental Protection
Northcentral District Oil and Gas Operations
208 W. Third Street, Suite 101
Williamsport, PA 17701

Attn: Chris Mileto, Senior Civil Engineer

Re: Technical Deficiencies Responses for the Phase IV Pipeline
DEP Joint Permit File No. E4129223-006 / APS No. ID No. 1096604

Chris:

I have enclosed the following responses for the ***Technical Deficiencies*** for PGE's ***Phases IV Pipeline (E4129223-006)*** as per your comments listed below:

Technical Deficiencies

1. Provide a more detailed analysis of alternatives to the proposed project including alternative locations, routing, or designs to avoid or minimize adverse environmental impacts. The alternative analysis should include all impacts of the overall project in the evaluation, permanent and temporary, direct, indirect, secondary, and cumulative. As part of the analysis the applicant shall consider present conditions and the effects of reasonably foreseeable future development. §105.13(e)(1)(viii)
   a. When locations are evaluated the applicant should consider areas and alignments located not only on land parcels currently owned by the applicant but also on parcels that could be reasonable obtained, utilized, expanded or managed to fulfill the basic purpose of the project. Please provide a more detailed analysis of routing the pipeline along Silver Springs Road, Truman Road, Schoolhouse Road and/or other local roadways to the west of the proposed pipeline. The alternative analysis states *proximity to camps* as one reason for eliminating certain routes from consideration. Please provide a map showing all of the private landowner parcels evaluated, areas of failed landowner negotiations as well as areas where landowner negotiations were successful. Additionally, discuss the possibility of boring in the more populated cabin areas, private landowner areas, and/or in areas of less steep terrain along these routes.
   b. The alternative analysis should evaluate the constructability and feasibility of a project with respect to existing utilities, easements and rights-of-way and previously disturbed areas. Consideration should be given to co-location of the proposed lines in existing rights-of-way and previously disturbed areas as an alternative to using undisturbed areas. It appears that there is an existing utility line to the west of the proposed route (shown in yellow on the alternative analysis mapping). Provide additional detail as to why the proposed lines cannot be co-located in or along this previously disturbed corridor.
   c. Discuss the estimated need for future development potential, additional pipelines, larger lines and/or upgrades with respect to secondary and cumulative impacts within the watershed upstream and downstream of the proposed project
   A revised alternatives analysis along with associated mapping has been prepared for this project.
2. Provide a detailed discussion and explain how the project will not result in adverse impacts to EV wetlands, as determined in accordance with Sections 105.14(b) and 105.15. §105.18a(a)(1)

Impacts to one (1) wetland (Wetland 7) are proposed as part of this project. Wetland 7 is an isolated wetland which does not serve as habitat for fauna or flora listed as "threatened" or "endangered" under the Endangered Species Act; is not hydrologically connected to or located within ½-mile of wetlands which contain "threatened" or "endangered" species; is not located in or along the floodplain of the reach of a wild trout stream or waters listed as exceptional value under Chapter 93 and the floodplain of streams tributary thereto, or wetlands within the corridor of a watercourse or body of water that has been designated as a National wild or scenic river in accordance with the Wild and Scenic Rivers Act of 1968 or the Pennsylvania Scenic Rivers Act.

3. Provide a site plan that depicts the following: State Game Land 75 property boundary; Tiadaghton State Forest property boundary; Bark Cabin Natural area boundary; Wolf Run Wild area; The Mid-state Trail; pipeline permanent and temporary right-of-way widths and pipeline centerline. §105.13(e)(1)(i)

   A separate plan depicting all of these areas in relationship to the pipeline alignment has been added to our submission package.

4. Provide a potential secondary impact evaluation and assessment of the proposed project. The purpose of this evaluation is to describe the direct and indirect environmental impacts on other adjacent land and water resources associated with the construction and operation and maintenance of the project and areas adjacent thereto. Provide an analysis of the impacts of the proposed project on the following areas:

   a. Bark Cabin Natural area

   b. The Mid-State Trail and recreational use (In some instances the proposed route parallels closely The Mid-State Trail and crosses the trail either by the pipelines and/or access road.)

   A potential secondary impact evaluation and assessment of the project has been prepared describing the direct and indirect environmental impacts on adjacent land and water resources especially concerning the Bark Cabin Natural Area and the Mid-State Trail.

5. Provide additional details in Module S3.D. Resource Function Effects in the Environmental Assessment. Specifically, discuss the types of impacts associated with the subfacility and the effect they have on the resource functions as described in Module S2.

   Module S3.D has been revised within the Environmental Assessment.

6. Provide more detailed assessment of the functions of the resources as described in Module S2.D. Specifically, discuss the wetland and stream condition(s) as they relate to the inherent functions including, but not limited to, those associated with hydrologic, biogeochemical and habitat attributes include any recreational uses when applicable.

   Module S2.D has been revised within the Environmental Assessment to discuss the wetland and stream conditions as they relate to their inherent functions.

7. Plan notes state in part that Silver Branch and Bark Cabin and their tributaries are listed as native wild trout streams. Therefore, no construction or future repair work shall take place in or along the stream channels between October 1 and December 31. Please note that the PFBC manages Bark Cabin Run and Silver Branch as Class A wild trout streams from their headwaters to mouths. Therefore, no construction or future repair work shall take place in or along the stream channels between October 1 through April 1.

   This note has been revised on the ESCGP-3 and Joint Permit Site Plans.

   Additionally, the summary table (Table S2.B.1-5) in the EA Module does not list any of the streams as being Class A wild trout waters. Revise accordingly.

   The summary table (Table S2.B.1-5) has been revised accordingly.

8. The provided mitigation plan calculates compensation for wetlands only. Since the PIECES in-lieu fee program is selected for use, calculations should also be provided for stream compensation requirements.

   Further, the Summary Table of Proposed Impacts in EA Module S3.A lists permanent direct impacts occurring to Wetland 7 and the floodways of the streams. Permanent Direct impacts consist of the

permanent loss of resources or conversion from one resource type to another (i.e. impounding a stream). Since the proposed impacts do not constitute a permanent loss of resources they should be listed as Permanent Indirect. Permanent Indirect impacts consist of the permanently maintained right-of-way through resources, conversion of PFO or PSS wetlands to PEM, and the trench or pipe width.

Calculations for the PIECES in-lieu fee have been added for streams and the impacts have been revised as requested for Wetland 7 and the floodways of the streams.

9. Provide a monitoring plan for the on-site wetland and riparian plantings as outlined in EA Module S.4.D Monitoring Plan.

   Riparian Forested Buffer Monitoring Notes have been added to all of the plan sheets and to the E&S Control Plan Narrative as well as added to Attachment T within this Joint Permit resubmission package.

10. Provide corrected E&S plans and site plans (§105.13(e)(1)(i), §105.13(e)(1)(ix), §105.14(b)(4)) a. Add Bark Cabin Natural area and the Mid-State Trail to plan sets and site plans

    The approximate locations of the Bark Cabin Natural Area and Mid State Trail have been shown on the plans in proximity to this pipeline alignment.

    b. Sht 2 of 9 Detail A. please clarify "existing Phase III pipeline"
    Sheet 2 of 9 Detail A has been revised and that pipeline is now shown with the correct name (Honniasont Tract 322 Pipeline (ESG13-081-0018(01)).

11. Provide a more detailed analysis of alternatives to the proposed project including alternative locations, routing, or designs to avoid or minimize adverse environmental impacts. (§105.13(e)(1)(viii))
    a. Provide further discussion and supporting information as to why boring methods are not practicable for the proposed crossings as boring could potentially eliminate the permanent aquatic resources impacts.
       i. Detail B Channel 3 – Station 32+25
       ii. Detail C Wetland 7 – Station 39+50
       iii. Detail D Channel 4, 5 & 12
       iv. Detail E Channel 6 – Station 96+25
       v. Detail F Channel 9 – Station 130+00

    A revised alternatives analysis along with associated mapping has been prepared for this project. Please see Attachment S of this Joint Permit resubmission package.

12. Provide additional information detailing the pipeline corridor in relation to the Bark Cabin Natural area and Mid-State Trail on the potential secondary impacts to this natural area. (§105.14(b)(5), §105.14(b)(12))

    The physical location of the pipeline as well as its permanent right of way have been shifted from Stations 40+00 through Station 73+50 (revised stationing) to the western side of the overall right of way (the temporary right of way and permanent right of way swapped sides) therefore providing for additional buffer area and any impacts to the Bark Cabin Natural Area. The Mid-State Trail will still be crossed, but PGE and their contractor will work with the PGC and DCNR during construction to provide potential route arounds if they would desire.

If you have any questions or require any additional information, please do not hesitate to contact our office at 724-735-2766.

Sincerely,

Eric David Dougherty, P.E., P.L.S.
Beran Environmental Services, Inc.

Enclosures

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    The approximate locations of the Bark Cabin Natural Area and Mid State Trail have been shown on the plans in proximity to this pipeline alignment.

    b. Sht 2 of 9 Detail A. please clarify "existing Phase III pipeline"

    Sheet 2 of 9 Detail A has been revised and that pipeline is now shown with the correct name (Honniasont Tract 322 Pipeline (ESG13-081-0018(01)).

11. Provide a more detailed analysis of alternatives to the proposed project including alternative locations, routing, or designs to avoid or minimize adverse environmental impacts. (§105.13(e)(1)(viii))
    a. Provide further discussion and supporting information as to why boring methods are not practicable for the proposed crossings as boring could potentially eliminate the permanent aquatic resources impacts.
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If you have any questions or require any additional information, please do not hesitate to contact our office at 724-735-2766.

Sincerely,

Eric David Dougherty, P.E., P.L.S.
Beran Environmental Services, Inc.

Enclosures

Prepared for:
Pennsylvania General Energy Co., LLC
Warren, PA

Phase IV Pipeline
JOINT PERMIT

Prepared by:

BERAN
ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

PGC APPROVALS
PHASE IV PIPELINE/WATERLINE PROJECT

PENNSYLVANIA GAME COMMISSION
BUREAU OF WILDLIFE HABITAT MANAGEMENT
2001 ELMERTON AVENUE HARRISBURG, PA 17110-9797 | (717) 787-6818

Mr. Douglas E. Kuntz
President and CEO
Pennsylvania General Energy Company, LLC
120 Market Street
Warren, PA 16365

Re: Final Approval of the Phase IV Pipeline/Waterline Project

Mr. Kuntz,

I'd like to begin by saying thank you to you and your staff for presenting the various alternatives that have been explored regarding the Phase IV project. The time you have spent explaining the various pros and cons to the alternatives and the subsequent adjustments made at the request of the PGC, not only to the proposed pipeline but to the overall development plan of the lease tracts on State Game Land 75, has been very worthwhile.

The mission of the Pennsylvania Game Commission is to manage wildlife and their habitats while promoting hunting and trapping for current and future generations. We must keep this mission in mind whenever we develop resources on or under the lands under our control, and we take the approach to avoid, minimize, and mitigate any impacts to the wildlife and habitat resources.

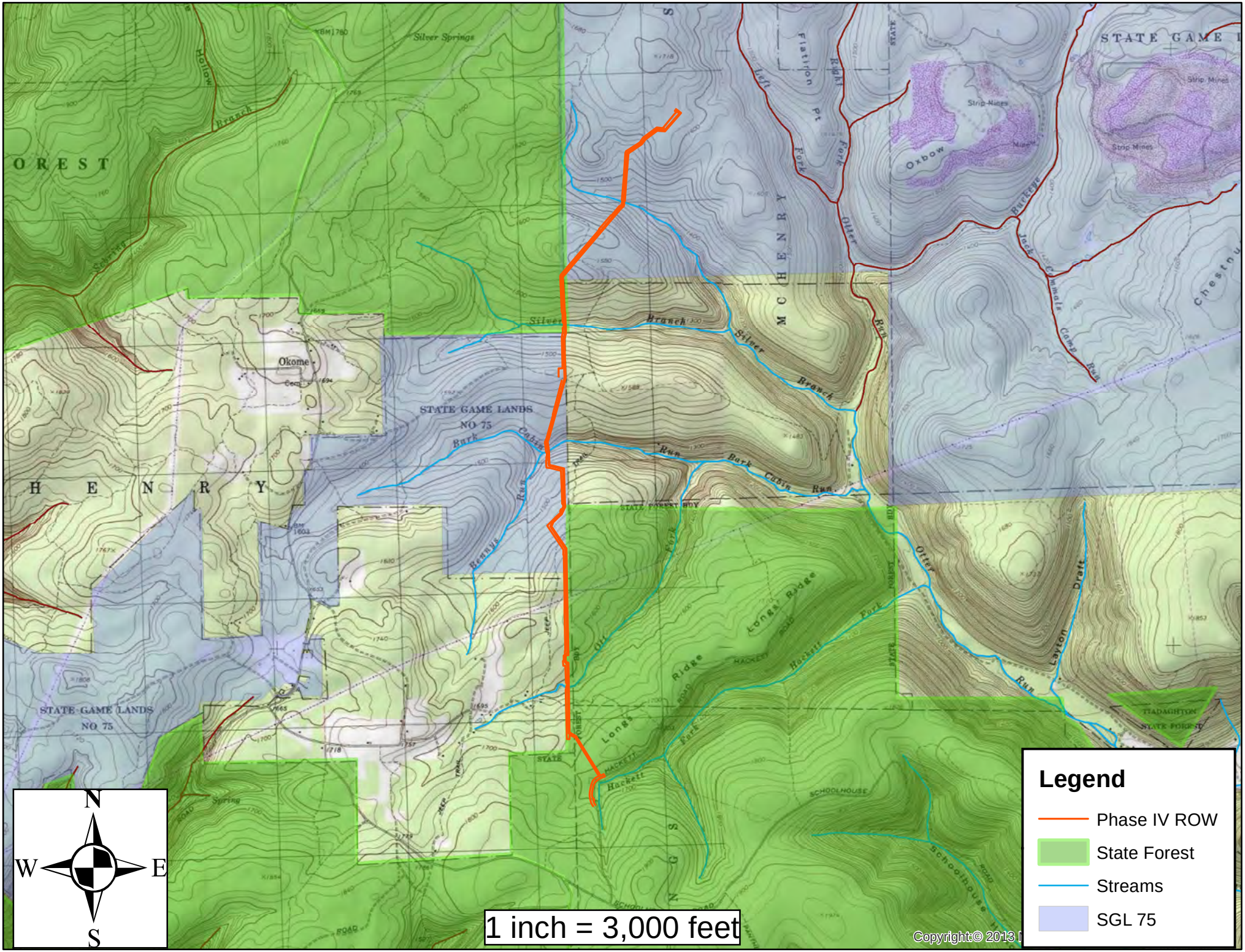
After thorough evaluation and discussion, we believe that the proposed route as shown on the attached map adheres to these goals and values, and by way of this letter hereby agree to that proposed route.

Surface impacts from the development of the pipeline are unavoidable, so minimizing those impacts and placing it at the best possible locations as has been negotiated with PGC field staff is critical. First, minimizing the distance of the pipeline is essential, as this limits the overall footprint of disturbance and conversion of habitats. Additionally, by minimizing the distance of the pipeline we avoid the unnecessary addition of compressor stations which would create noise and air pollution that is certainly not desirable in this landscape. Second, avoiding impacts to wetlands and placing necessary stream crossings at the most desirable locations is a logical and critical measure to protect the watershed.

We look forward to continued cooperation as we work collectively to develop the oil and gas resources of the Commonwealth while still protecting the wildlife and habitat that we are entrusted to manage for all citizens.

Sincerely,

David J. Gustafson, Director
Bureau of Wildlife Habitat Management
Pennsylvania Game Commission


Legend
Phase IV ROW
State Forest
Streams
SGL 75
1 inch = 3,000 feet
N
S
E
W
STATE GAME LANDS NO 75
STATE GAME LANDS NO 75
HENRY
McKEAN
Silver Branch
Bark Cabin Run
Otter Run
Longs Ridge Road
Hackett Run
Layton Draft
Schoolhouse Road
Okome
Copyright© 2013

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

February 27, 2023

Mr. Nathan Harris
Pennsylvania General Energy
120 Market Street
Warren, PA 16365

TRANSMITTED ELECTRONICALLY

Re: Department PRELIMINARY Approval of Honniasont Phase IV Pipeline, Tiadaghton State Forest

Dear Mr. Harris:

The Bureau of Forestry (BOF) has reviewed and grants final approval of the Honniasont Phase IV Pipeline as proposed by Pennsylvania General Energy (PGE) for Tract 322. The final approval of the pipeline is predicated on the provided shapefiles and location maps, and contingent on those items discussed during the project review. Those items are as follows:

- The Phase IV pipeline right-of-way (ROW) on Tract 322 is limited to a 50-foot wide Limit of Clearing (LOC) during construction to include a 12-inch diameter gas gathering pipeline and two buried 8-inch diameter freshwater pipelines.
- Following construction, the disturbed footprint of the pipeline corridor, which is not coincident to an access road, will be rehabilitated and reduced to a maintained width which is not to exceed thirty (30) feet.
- Vegetation maintenance within the ROW, such as mowing, is limited to that which is necessary to protect pipeline integrity. Mowing is restricted to a ten -foot width centered over the gas pipeline. All vegetation maintenance should be discussed with the forest district prior to activity.
- For areas of coincident road and pipeline ROW, the pipeline will be constructed within the road maintenance profile located directly beside the pipeline trench.
- All pipelines should be sized to accommodate all future development needs. No additional disturbance or ROW expansion will be permitted.
- All pipelines should be buried to a depth that will sufficiently accommodate all future surface activity by the BOF including, but not limited to, timber sales. If pipelines cannot be bedded to a sufficient depth, PGE assumes all responsibility for protecting their property from future crossings at their cost.
- PGE will immediately block the access point from the Phase IV pipeline on state forest land to private property and will include boulders or other structures to prevent public access.
- Water infiltration basins are not considered acceptable options for road or right-of-way post construction storm-water management (PCSM) controls. Non-structural best management practices shall be utilized for PCSM when permittable. The BOF retains approval authority for the type of structural PCSM controls to be implemented.
- PGE will locate PCSM controls in areas of low tree density to minimize tree clearing.
- PGE will be responsible to upgrade access roads as necessary to support the activity as prescribed by the Tiadaghton State Forest District and documented in the maintenance schedule of the Oil and Gas Road Use Agreement.
- PGE assumes complete responsibility for all agents and subcontractors and shall coordinate with the Department to identify the agents and subcontractors and the anticipated duration of their activity.
- PGE shall maintain roads in accordance with the executed Oil and Gas Road Use Agreement.

- PGE will take appropriate steps to maintain soil productivity and shall mitigate compaction within the ROW following construction per the direction of the BOF.
- The Tiadaghton State Forest District will develop a planting plan for the Honniasont Phase IV pipeline corridor. PGE will complete the plantings at the earliest appropriate time. All plantings should follow the Pennsylvania Bureau of Forestry Planting and Seeding Guidelines as provided in the 4th Edition Revised 2016 Guidelines for Administering Oil and Gas Activity on State Forest Land. PGE is responsible for the protection of the tree seedlings as described in the planting plan and to maintain 70% survivability.
- PGE will coordinate with the Tiadaghton district office for timber removal practices. The district office requires that the treetops and the stumps remain along the edge of disturbance. Stumps removed from permanent ROW should be lined along the edge of the limit of disturbance, root balls down, in groups of three to five. Twenty-foot wide openings will be maintained every one-hundred-feet to allow for wildlife passage. No equipment will be used outside of the ROW.
- The use of synthetic E&S matting is prohibited. Only bio-degradable, jute material may be used for E&S matting on state forest lands.
- PGE will employ avoidance and minimization techniques in areas of special resources such as vernal pools and wetlands.
- PGE will coordinate with the Tiadaghton district office to incorporate appropriate conservation measures and enhance habitat for the timber rattlesnake. PGE will meet all Pennsylvania Fish and Boat Commission (PFBC) requirements as provided to PGE for the timber rattlesnake for this project area.
- PGE is required to submit for a lease waiver from the Bureau from construction within 300-feet on the lease premises boundary and within 200-feet within any stream or body of water.

This letter grants preliminary approval and allows PGE to begin all surveys of the proposed location. Final approval requires receipt of wetland surveys, ESCGP plans, PNDI receipts and reviews. PGE should submit this information in one project proposal for internal review by the BOF for final project approval. PGE is required to execute a replacement License of Right-of-Way for the Honniassont pipeline and its associated appurtenances.

All field logistics should be coordinated with Mr. Ben Gamble, Gas Forester of the Tiadaghton State Forest District. Should you require additional information or comment, please feel free to contact me via electronic mail (slivelsber@pa.gov) or telephone (717-783-3227). I look forward to hearing from you in the very near future.

Sincerely,

Stephanie Livelsberger

Stephanie Livelsberger
Natural Resource Program Specialist
Oil and Gas Program

cc::

Minerals Division, BOF (via email)
Tiadaghton State Forest, BOF (via email)
Jason Albright, BOF (via email)

CHAPTER 105 ENGINEERING REVIEW SUMMARY

Engineering Review Summary
For Chapter 105 Applications

Phase IV Pipeline

Cummings & McHenry Townships, Lycoming County

September 2023
Revised March 28, 2024

Prepared for:

PGE Pennsylvania General Energy Co., LLC

Prepared by:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Project: Phase IV Pipeline

Person responsible for construction and maintenance of earthmoving operations and implementation of the erosion and sedimentation control plan:

Company: Pennsylvania General Energy Co., LLC (Ben VanOrd)

Address: 120 Market St., Warren, PA 16365

Phone: (814) 779-3242

On the Lands of: State Forest & Gamelands, Steven E. Ruhl Et. Al., Joshua D. Shoemaker Et. Al., Otter Run Fish & Game Club, Inc.

USGS Quad: Cammal

Receiving Streams: Hackett Fork, Ott Fork, Bennys Run, Bark Cabin Run, Silver Branch

Municipality: Cummings & McHenry Townships

County: Lycoming

Gas Pipeline:	Beginning:	Latitude: 41.406320	Longitude: -77.387118
	Ending:	Latitude: 41.454964	Longitude: -77.379505
Waterline:	Beginning:	Latitude: 41.406410	Longitude: -77.387140
	Ending:	Latitude: 41.454980	Longitude: -77.379513

Plan Prepared by:

Beran Environmental Services, Inc.
2322 West Sunbury Road
Boyers, PA 16027
(724) 735-2766
Eric Dougherty, Chris Musser

General Information

1. Streams (Drainage Areas over 100 acres): Channel 3 (Ott Fork) (HQ-CWF), Channel 6 (Bark Cabin Run) (HQ-CWF), Channel 9 (Silver Branch) (HQ-CWF), Channel 10 (UNT Silver Branch) (HQ-CWF)
2. Drainage Areas: Channel 1: 0.45 mi² (296 acres), Channel 3: 0.68 mi² (437 acres), Channel 6: 2.04 mi² (1,308 acres), Channel 9: 1.91 mi² (1,225 acres), Channel 10: 1.63 mi² (1,041 acres)
3. Detailed FEMA study: YES ☐ NO ☒
4. Floodway Delineated by FEMA? YES ☐ NO ☒
5. E&S and Stormwater Management Summary? YES ☒ NO ☐ N/A ☐
6. Approved Stormwater Plan? YES ☒ NO ☐ N/A ☐
7. Local Floodplain Management Consistency Letter? YES ☐ NO ☐ N/A ☒ Act 167

Because this is a linear project it is considered by design to be a water dependent project since it cannot fulfill its intended purpose without crossing said aquatic resources

Project Description

This project will consist of the construction of 19,894 linear feet of 12" natural gas pipeline and 19,855 linear feet of two (2) 8" flexsteel waterlines within a 30' wide permanent right-of-way and temporary right-of-way that varies in width. Nine (9) streams and one (1) wetland will be crossed by the pipelines requiring a joint permit. All stream and wetland crossings will be open cut. An existing access road will also be improved as part of the project. The total disturbance area, which includes the proposed pipeline right-of-way area and workspace for the access road is 42.17 acres.

Channel 1 (Hackett Fork): 41° 24' 25.904" -77° 23' 12.987". The work at this site consists of the placement of one (1) temporary timber mat for machinery to cross the stream.

Channel 3 (Ott Fork): 41° 24' 50.810", -77° 23' 21.178". The work at this site consists of the placement of one (1) 12" natural gas pipeline and two (2) 8" flexsteel underground waterlines using an open cut trench to cross the stream.

Wetland 7: 41° 24' 57.521 -77° 23' 22.012". The work at this site consists of the placement of one (1) 12" natural gas pipeline and two (2) 8" flexsteel underground waterlines using an open cut trench to cross the wetland.

Channel 4 (UNT Bennys Run): 41° 25' 33.039", -77° 23' 24.108". The work at this site consists of the placement of one (1) 12" natural gas pipeline and two (2) 8" flexsteel underground waterlines using an open cut trench to cross the stream.

Channel 5 (UNT Bennys Run): 41° 25' 35.004", -77° 23' 22.384". The work at this site consists of the placement of one (1) 12" natural gas pipeline and two (2) 8" flexsteel underground waterlines using an open cut trench to cross the stream.

Channel 6 (Bark Cabin Run): 41° 25' 48.706", -77° 23' 27.369". The work at this site consists of the placement of one (1) 12" natural gas pipeline and two (2) 8" flexsteel underground waterlines using an open cut trench to cross the stream.

Channel 9 (Silver Branch): 41° 26' 19.232", -77° 23' 21.610". The work at this site consists of the placement of one (1) 12" natural gas pipeline and two (2) 8" flexsteel underground waterlines using an open cut trench to cross the stream.

Channel 9A (UNT Silver Branch): 41° 26' 20.758", -77° 23' 21.648". The work at this site consists of the placement of one (1) 12" natural gas pipeline and two (2) 8" flexsteel underground waterlines using an open cut trench to cross the stream.

Channel 10 (UNT Silver Branch): 41° 26' 51.816", -77° 23' 01.958". The work at this site consists of the placement of one (1) 12” natural gas pipeline and two (2) 8” flexsteel underground waterlines using an open cut trench to cross the stream.

Channel 12 (UNT Bennys Run): 41° 25' 32.124", -77° 23' 25.376". The work at this site consists of the placement of one (1) 12” natural gas pipeline and two (2) 8” flexsteel underground waterlines using an open cut trench to cross the stream.

A total of eight (8) permanent and nine (9) temporary stream impacts are proposed. Project watercourse impacts shall include and be limited to a total of 390 SF (48 LF) of permanent stream impacts and 3,151 SF (421 LF) of temporary stream impacts.

A total of one (1) permanent and one (1) temporary wetland impacts are proposed. Project wetland impacts shall include and be limited to a total of 808 SF of permanent wetland impacts and 1,524 SF of temporary wetland impacts.

JOINT PERMIT APPLICATION

3150-PM-BWEW0036A Rev. 3/2022

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
and
DEPARTMENT OF ARMY CORPS OF ENGINEERS
(Pittsburgh, Baltimore, Philadelphia and Districts)

JOINT APPLICATION FOR PENNSYLVANIA CHAPTER 105 WATER OBSTRUCTION AND ENCROACHMENT PERMIT AND U.S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT

Before completing this form, please read the step-by-step instructions and Section F Application Completeness Checklist provided with this Joint Permit package.

AGENCY USE ONLY

Application ID# (Assigned by DEP) _____ RECEIVED DATE _____ CHECK NO. _____

Program Application No. _____ REQUIRED APP. FEE _____ AMOUNT $_____

SECTION A. APPLICATION TYPE

STANDARD ☒ SMALL PROJECTS ☐

SECTION B. APPLICANT IDENTIFIER

Applicant Name: Pennsylvania General Energy Co., LLC
Employer ID# (EIN): 43-2002031

Consulting Firm: Beran Environmental Services, Inc.
Employer ID# (EIN): 01-0808214

SECTION C. PROJECT LOCATION DATA AND STATUS

Name of stream and/or body of water and Chapter 93 designation.

Hackett Fork, Ott Fork, Bennys Run, Bark Cabin Run, Silver Branch and their tributaries (CWF)

Corps District where project will occur.

☐ Pittsburgh (Ohio River Basin) ☒ Baltimore (Susquehanna River Basin) ☐ Philadelphia (Delaware River Basin)

Name of the U.S.G.S. 7 1/2 Minute Quadrangle Map where project is located: Cammal

Indicate location of project: Latitude 41.430972; Longitude -77.391058

Project type, purpose and need: This project will consist of the construction of 19,894 linear feet of 12" natural gas pipeline and 19,855 linear feet of two (2) 8" flexsteel waterlines within a 30' wide permanent right-of-way and temporary right-of-way that varies in width. Nine (9) streams and one (1) wetland will be crossed by the pipelines requiring a joint permit. All stream and wetland crossings will be open cut. An existing access road will also be improved as part of the project. The total disturbance area, which includes the proposed pipeline right-of-way area and workspace for the access road is 42.17 acres.

HAS ANY PORTION OF PROPOSED PROJECT BEEN AUTHORIZED? ☐ yes ☒ no _____ date authorized

If yes, attach description of those portions of the project that have been authorized and identify dates of authorization.

SECTION D. AQUATIC RESOURCE IMPACT TABLE

HAS ALL INFORMATION INCLUDED ON THE IMPACT TABLE BEEN PROVIDED? ☒ yes ☐ no

If NO, indicate the information not included and the reason. Also attach a completed AQUATIC RESOURCES IMPACT TABLE (3150-PM-BWEW0557) worksheet or equivalent.

- Project Information: _____
- Corps / 404: _____
- DEP / 105: _____

SECTION E. COMPLIANCE REVIEW

Place an "X" in either the YES or NO block for each section below to indicate if applicant (owner and/or operator) are currently in violation pertaining to each question.

Yes **No**

☐ ☒ Is the applicant (owner and / or operator) currently in violation of any permit, authorization or approval issued by the Department?
If YES – complete the necessary information for questions 1 - 3.

1. Permit Number: _____
2. Nature of the violation(s) (if any): _____
3. Status of violation(s) (i.e., schedule for compliance, etc.): _____

Yes **No**

☐ ☒ Is the applicant in violation of the, the Dam Safety and Encroachments Act, Chapter 105 Dam Safety and Waterway Management regulations or other laws administered by the Department, PA Fish and Boat Commission or a river basin commission such as the Susquehanna River Basin Commission (SRBC), the Delaware River Basin Commission (DRBC) or the Ohio River Valley Water Sanitation Commission (ORSANCO)?. This includes a violation of an adjudication and order, agreement, consent order or decree, whether or not the applicant's violation resulted in an order or civil penalty assessment.
If YES – complete the necessary information for questions 1 – 2.

Use additional sheets of paper, if required, and attach to application

1. Nature of the violation(s) (if any): _____
2. Status of violation(s) (i.e. schedule for compliance, etc.): _____

SECTION F. APPLICATION COMPLETENESS CHECKLIST

Applicant must place an entry - Y = Yes, N = No, N/A = Not Applicable - in each left side column space. See Section 105.13 for additional details. If you are applying under the Small Projects Application format, place an entry in only those comments prefixed by an asterisk (*).

REQUIREMENT	Applicant Entry	DEP Use Only
a. GIF and permit application properly signed, sealed and witnessed	*Y	
b. Application Fee & Worksheet enclosed (see Section G.)	*Y	
c. Copies and proof of receipt - Act 14 notification - Acts 67/68/127	*Y	
d. Cultural Resource Notice (Notice, return receipt and PHMC review letter, as appropriate)	*Y	
e. Pennsylvania Natural Diversity Inventory (signed PNDI Receipt showing Avoidance Measures or Potential Impacts and proof of delivery to the appropriate jurisdictional agency(ies) where further coordination is required, as appropriate)	*Y	
f. Plans (site plan including cross sections and profiles for Subsections 151, 191, 231, 261)	*Y	
g. Location map	Y	
h. Project description narrative including PNDI avoidance measures (if applicable) AND Aquatic Resource Impact Table	*Y *Y	
i. Color photographs with map showing location taken	*Y	
j. Environmental Assessment form	*Y	
k. Erosion and Sediment Control Plan and approval letter	Y	
l. Hydrologic and hydraulic analysis	Y	
m. Stormwater Management Analysis with consistency letter	N/A	
n. Floodplain Management Analysis with consistency letter	Y	
o. Risk Assessment	N	
p. Professional engineer's seal and certification	Y	

SECTION G. DETERMINATION OF APPLICATION FEES (DEP FEES ONLY)

The fee required for a project authorized under this permit shall be consistent with 25 PA Code §105.13 (relating to regulated activities – information and fees). To determine the application fee, please complete the Chapter 105 Fee(s) Calculation Worksheet (3150-PM-BWEW0553). Please provide the completed worksheet and a check for the applicable fee(s) made payable to the "Commonwealth of Pennsylvania Clean Water Fund."

SECTION H. ADJOINING PROPERTY OWNERS

Please list the name and address of all property owners whose land adjoins the project property.

NAME	ADDRESS
See attached list	

SECTION I. CERTIFICATION AND SIGNATURE (see Instructions for clarification of signature requirements)

I certify under penalty of law that the information provided in this permit registration is true and correct to the best of my knowledge and information and that I possess the authority to undertake the proposed action. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (If any of the information and/or plans is found to be in error, falsified, and/or incomplete, this authorization/verification may be subject to modification, suspension, or revocation in accordance with applicable regulations.)

I certify that the project proposed in this application complies with and will be conducted in a manner that is consistent with the approved Coastal Zone Management program of the Commonwealth of Pennsylvania. (Only portions of Erie, Bucks, Philadelphia and Delaware Counties are in the Coastal Zone).

I grant permission to the agencies responsible for authorization of this work, or their duly authorized representative, to enter the project site for inspection purposes during working hours. I will abide by the conditions of the permit or license if issued and will not begin work without the appropriate authorization.

Signature of Applicant/Owner

09-11-2023
Date

Nathan Harris Vice President of Strategic Operations and Development

Typed / Printed Name & Title of Applicant/Owner

Jessica Lookenhouse

Signature of Witness

SEAL

Jessica Lookenhouse Lease Administrator

Typed / Printed Name & Title of Witness

Commonwealth of Pennsylvania - Notary Seal
Jessica Lookenhouse, Notary Public
Warren County
My commission expires June 7, 2026
Commission number 1256254
Member, Pennsylvania Association of Notaries

Phase IV Pipeline

Parcel ID	Owner Name	Owner Address	Site Address
09-500-002	State Forest & Game Lands	2001 Elmerton Ave.	2532 N Ramsey Rd.
28-500-002	State Forest & Game Lands	2001 Elmerton Ave.	SR-0414
28-224-103	Steven E. Ruhl Et. Al.	187 Quarry Rd.	1388 Old Post Office Rd
28-224-105	Joshua D Shoemaker Et Al	37793 Elizabeths Field Ln.	1489 Old Post Office Rd.
28-500-001	State Forest & Game Lands	2001 Elmerton Ave.	SR-0044
28-204-100	Otter Run Fish & Game Club Inc.	2012 Black Bird Circle	Otter Run Rd.
28-184-101	Pennsylvania Game Commission	2001 Elmerton Ave.	Browns Fork Rd.
47-500-001	State Forest & Game Lands	2001 Elmerton Ave.	Sulphur Spring Rd.
47-224-100	Otter Run Fish & Game Club Inc.	2012 Black Bird Circle	764 Otter Run Lane
28-224-106.D	Jeanne V & James R Craley	136 Furlong Way	1380 Old Post Office Rd.
28-224-104	Buck Horn Hunting Club	31 Pleasant Hill Dr.	1329 Old Post Office Rd.
28-224-110	Ronald B & Judith A Dewitsky	238 Northridge Dr.	1212 Old Post Office Rd.
28-224-106.C	Dale Hockenberry 2016 Rev Trust	PO Box 68	1495 Old Post Office Rd.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This form is used by the Department of Environmental Protection (DEP) to inform our programs regarding what other DEP permits or authorizations may be needed for the proposed project or activity. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the DEP.

Related ID#s (If Known)		DEP USE ONLY
Client ID#	APS ID#	Date Received & General Notes
Site ID#	Auth ID#	
Facility ID#		

CLIENT INFORMATION

DEP Client ID#	Client Type / Code	Dun & Bradstreet ID#
	LLC	

Legal Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Is the EIN a SSN?
Pennsylvania General Energy Co., LLC	43-2002031	☐ Yes ☒ NO

State of Incorporation or Registration of Fictious Name	
Pennsylvania	☐ Corporation ☒ LLC ☐ Partnership ☐ LLP ☐ LP ☐ Sole Proprietorship ☐ Association/Organization ☐ Estate/Trust ☐ Other

Individual Last Name	First Name	MI	Suffix
Kuntz	Robert		
Additional Individual Last Name	**First Name**	**MI**	**Suffix**

Mailing Address Line 1	Mailing Address Line 2
120 Market St.	

Address Last Line – City	State	ZIP+4	Country
Warren	PA	16365	USA

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext	Cell Phone
Staff Regulatory Analyst	814-723-3230		

Email Address	FAX
robertkuntz@penngeneralenergy.com	

SITE INFORMATION

DEP Site ID#	Site Name
	Phase IV Pipeline

EPA ID# **Estimated Number of Employees to be Present at Site** Undetermined

Description of Site
The site consists of an existing pipeline right-of-way, well pads, access roads and forest.

Tax Parcel ID(s):

County Name(s)	Municipality(ies)	City	Boro	Twp	State
Lycoming	Cummings	☐	☐	☒	PA
Lycoming	McHenry	☐	☐	☒	PA
		☐	☐	☐	
		☐	☐	☐	

Site Location Line 1	Site Location Line 2

Site Location Last Line – City	State	ZIP+4
Trout Run	PA	17771

Detailed Written Directions to Site
From Williamsport, head South on US 220 towards Lock Haven, take exit 120 for PA-44. Follow PA-44 North for 12.3 miles, continue straight onto SR 414, follow for 5.7 miles, turn right onto Truman Road, follow said road for 4 miles, make a right onto Otter Run Road, follow said road to the access for SGL 75 Pad A, the improved access road begins here.

Site Contact Last Name	**First Name**	**MI**	**Suffix**
Kuntz	Robert		

Site Contact Title	**Site Contact Firm**
Staff Regulatory Analyst	

Mailing Address Line 1	**Mailing Address Line 2**
120 Market St.	

Mailing Address Last Line – City	**State**	**ZIP+4**
Warren	**PA**	**16365**

Phone	**Ext**	**FAX**	**Email Address**
814-723-3230			robertkuntz@penngeneralenergy.com

NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	**6-Digit Code** (Optional)
211	

Client to Site Relationship
LESSEE

FACILITY INFORMATION

Modification of Existing Facility	**Yes**	**No**
1. Will this project modify an existing facility, system, or activity?	☐	☒
2. Will this project involve an addition to an existing facility, system, or activity?	☐	☒

If "Yes", check all relevant facility types and provide DEP facility identification numbers below.

	Facility Type	**DEP Fac ID#**		**Facility Type**	**DEP Fac ID#**
☐	Air Emission Plant		☐	Industrial Minerals Mining Operation	
☐	Beneficial Use (water)		☐	Laboratory Location	
☐	Blasting Operation		☐	Land Recycling Cleanup Location	
☐	Captive Hazardous Waste Operation		☐	Mine Drainage Treatment / Land Recycling Project Location	
☐	Coal Ash Beneficial Use Operation		☐	Municipal Waste Operation	
☐	Coal Mining Operation		☐	Oil & Gas Encroachment Location	
☐	Coal Pillar Location		☐	Oil & Gas Location	
☐	Commercial Hazardous Waste Operation		☐	Oil & Gas Water Poll Control Facility	
☐	Dam Location		☐	Public Water Supply System	
☐	Deep Mine Safety Operation -Anthracite		☐	Radiation Facility	
☐	Deep Mine Safety Operation -Bituminous		☐	Residual Waste Operation	
☐	Deep Mine Safety Operation -Ind Minerals		☐	Storage Tank Location	
☐	Encroachment Location (water, wetland)		☐	Water Pollution Control Facility	
☐	Erosion & Sediment Control Facility		☐	Water Resource	
☐	Explosive Storage Location		☐	Other:	

Latitude/Longitude Point of Origin	**Latitude**			**Longitude**		
	Degrees	**Minutes**	**Seconds**	**Degrees**	**Minutes**	**Seconds**
Aprox. center of project area	41	25	**52**	-76	23	**27**

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☒ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code	GISDR		
Reference Point Code	CNTAR		
Altitude	Feet 1346' to 1708'	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☒ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code	TOPO		
Geometric Type Code	POINT		
Data Collection Date			
Source Map Scale Number	1 Inch(es) = 2000 Feet		
--or--	Centimeter(s) = Meters		

PROJECT INFORMATION

Project Name
Phase IV Pipeline

Project Description
This project will consist of the construction of 19,894 linear feet of 12" natural gas pipeline and 19,855 linear feet of two (2) 8" flexsteel waterlines within a 30' wide permanent right-of-way and temporary right-of-way that varies in width. Nine (9) streams and one (1) wetland will be crossed by the pipelines requiring a joint permit. All stream and wetland crossings will be open cut. An existing access road will also be improved as part of the project. The total disturbance area, which includes the proposed pipeline right-of-way area and workspace for the access road is 42.17 acres.

Project Consultant Last Name	First Name	MI	Suffix
Dougherty	Eric	D	P.E., P.L.S.

Project Consultant Title	Consulting Firm
Project Engineer	Beran Environmental Services, Inc.

Mailing Address Line 1	Mailing Address Line 2
2322 West Sunbury Road	

Address Last Line – City	State	ZIP+4
Boyers	PA	16020

Phone	Ext	FAX	Email Address
(724) 735-2766	13		edougherty@beranenvironmental.com

Time Schedules	Project Milestone (Optional)

1. Is the project located in or within a 0.5-mile radius of an Environmental Justice community as defined by DEP? ☐ Yes ☒ No

To determine if the project is located in or within a 0.5-mile radius of an environmental justice community, please use the online Environmental Justice Areas Viewer.

2. Have you informed the surrounding community prior to submitting the application to the Department? ☒ Yes ☐ No

Method of notification: ACT 14

3. Have you addressed community concerns that were identified? ☐ Yes ☐ No ☒ N/A

If no, please briefly describe the community concerns that have been expressed and not addressed.

4. Is your project funded by state or federal grants? ☐ Yes ☒ No

Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.

Aspect of Project Related to Grant
Grant Source: _____
Grant Contact Person: _____
Grant Expiration Date: _____

5.	**Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** **Note:** If "No" to Question 5, the application is not subject to the Land Use Policy. If "Yes" to Question 5, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.	☐	Yes	☒	No

LAND USE INFORMATION

Note: Applicants should submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1.	**Is there an adopted county or multi-county comprehensive plan?**	☒	Yes	☐	No
2.	**Is there a county stormwater management plan?**	☒	Yes	☐	No
3.	**Is there an adopted municipal or multi-municipal comprehensive plan?**	☐	Yes	☒	No
4.	**Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** **Note:** If the Applicant answers "No" to either Questions 1, 3 or 4, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 5 and 6 below. If the Applicant answers "Yes" to questions 1, 3 and 4, the Applicant should respond to questions 5 and 6 below.	☒	Yes	☐	No
5.	**Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** If zoning approval has been received, attach documentation.	☒	Yes	☐	No
6.	**Have you attached Municipal and County Land Use Letters for the project?**	☐	Yes	☒	No

COORDINATION INFORMATION

Note: The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 utilizing the Project Review Form.

If the activity will be a mining project (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

If the activity will not be a mining project, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	**Is this a coal mining project?** If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	☐	Yes	☒	No
1.1	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?**	☐	Yes	☐	No
1.2	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?**	☐	Yes	☐	No
1.3	**Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?**	☐	Yes	☐	No
1.4	**For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?**	☐	Yes	☐	No
1.5	**Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?**	☐	Yes	☐	No
1.6	**Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?**	☐	Yes	☐	No
2.0	**Is this a non-coal (industrial minerals) mining project?** If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	☐	Yes	☒	No

2.1	**Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?**	☐	Yes	☐	No
2.2	**Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?**	☐	Yes	☐	No
2.3	**Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?**	☐	Yes	☐	No
2.4	**For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?**	☐	Yes	☐	No
2.5	**Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?**	☐	Yes	☐	No
3.0	**Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well?** If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	☒	Yes	☐	No
3.1	**Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?**	☒	Yes	☐	No
3.2	**Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system?** If "Yes", discuss in *Project Description*.	☐	Yes	☒	No
3.3	**Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?**	☐	Yes	☒	No
4.0	**Will the project involve a construction activity that results in earth disturbance?** If "Yes", specify the total disturbed acreage.	☒	Yes	☐	No
4.0.1	**Total Disturbed Acreage** 42.17				
4.0.2	**Will the project discharge or drain to a special protection water (EV or HQ) or an EV wetland?**	☒	Yes	☐	No
4.0.3	**Will the project involve a construction activity that results in earth disturbance in the area of the earth disturbance that are contaminated at levels exceeding residential or non-residential medium-specific concentrations (MSCs) in 25 Pa. Code Chapter 250 at residential or non-residential construction sites, respectively?**	☐	Yes	☒	No
5.0	**Does the project involve any of the following: water obstruction and/or encroachment, wetland impacts, or floodplain project by the Commonwealth/political subdivision or public utility?** If "Yes", respond to 5.1-5.7. If "No", skip to Question 6.0.	☒	Yes	☐	No
5.1	**Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?**	☒	Yes	☐	No

5.2	**Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?**	☒	Yes	☐	No
5.3	**Floodplain Projects by the Commonwealth, a Political Subdivision of the Commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?**	☐	Yes	☒	No
5.4	**Is your project an interstate transmission natural gas pipeline?**	☐	Yes	☒	No
5.5	**Does your project consist of linear construction activities which result in earth disturbance in two or more DEP regions AND three or more counties?**	☐	Yes	☒	No
5.6	**Does your project utilize Floodplain Restoration as a best management practice for Post Construction Stormwater Management?**	☐	Yes	☒	No
5.7	**Does your project utilize Class V Gravity / Injection Wells as a best management practice for Post Construction Stormwater Management?**	☐	Yes	☒	No
6.0	**Will the project involve discharge of construction related stormwater to a dry swale, surface water, ground water or separate storm water system?**	☐	Yes	☒	No
6.1	**Will the project involve discharge of industrial waste stormwater or wastewater from an industrial activity or sewage to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?**	☐	Yes	☒	No
7.0	**Will the project involve the construction and operation of industrial waste treatment facilities?**	☐	Yes	☒	No
8.0	**Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations?** If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the *Project Description*, where applicable. **8.0.1 Estimated Proposed Flow (gal/day)**	☐	Yes	☒	No
9.0	**Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?**	☐	Yes	☒	No
	9.0.1 Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	☐	Yes	☐	No
10.0	**Is this project for the beneficial use of biosolids for land application within Pennsylvania?** If "Yes" indicate how much (i.e. gallons or dry tons per year). **10.0.1 Gallons Per Year (residential septage)** _____ **10.0.2 Dry Tons Per Year (biosolids)**	☐	Yes	☒	No
11.0	**Does the project involve construction, modification or removal of a dam?** If "Yes", identify the dam. **11.0.1 Dam Name**	☐	Yes	☒	No
12.0	**Will the project interfere with the flow from, or otherwise impact, a dam?** If "Yes", identify the dam. **12.0.1 Dam Name**	☐	Yes	☒	No

13.0	**Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)?**	☐	Yes	☒	No
	13.0.1 If "Yes", is the operation subject to the agricultural exemption in 35 P.S. § 4004.1?	☐	Yes	☐	No
	13.0.2 If the answer to 13.0.1 is "No", identify each type of emission followed by the estimated amount of that emission. **Enter all types & amounts of emissions; separate each set with semicolons.**				
14.0	**Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year?** If "Yes", check all proposed sub-facilities.	☐	Yes	☒	No
	14.0.1 Number of Persons Served _____				
	14.0.2 Number of Employee/Guests _____				
	14.0.3 Number of Connections _____				
	14.0.4 Sub-Fac: Distribution System	☐	Yes	☐	No
	14.0.5 Sub-Fac: Water Treatment Plant	☐	Yes	☐	No
	14.0.6 Sub-Fac: Source	☐	Yes	☐	No
	14.0.7 Sub-Fac: Pump Station	☐	Yes	☐	No
	14.0.8 Sub Fac: Transmission Main	☐	Yes	☐	No
	14.0.9 Sub-Fac: Storage Facility	☐	Yes	☐	No
15.0	**Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?**	☐	Yes	☒	No
16.0	**Is your project to be served by an existing public water supply?** If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.	☐	Yes	☒	No
	16.0.1 Supplier's Name _____				
	16.0.2 Letter of Approval from Supplier is Attached	☐	Yes	☐	No
17.0	**Will this project be served by on-lot drinking water wells?**	☐	Yes	☒	No
18.0	**Will this project involve a new or increased drinking water withdrawal from a river, stream, spring, lake, well or other water bod(ies)?** If "Yes", reference Safe Drinking Water Program.	☐	Yes	☒	No
	18.0.1 Source Name				
19.0	**Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste?** If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.	☐	Yes	☒	No
	19.0.1 Type & Amount				
20.0	**Will your project involve the removal of coal, minerals, contaminated media, or solid waste as part of any earth disturbance activities?**	☐	Yes	☒	No
21.0	**Does your project involve installation of a field constructed underground storage tank?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit.	☐	Yes	☒	No
	21.0.1 Enter all substances & capacity of each; separate each set with semicolons. _____				

22.0	**Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **22.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
23.0	**Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **23.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
24.0	**Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **24.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
	NOTE: If the project includes the installation of a regulated storage tank system, including diesel emergency generator systems, the project may require the use of a Department Certified Tank Handler. For a full list of regulated storage tanks and substances, please go to www.dep.pa.gov search term storage tanks				
25.0	**Will the intended activity involve the use of a radiation source?**	☐	Yes	☒	No

CERTIFICATION

I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

For applicants supplying an EIN number: I am applying for a permit or authorization from the Pennsylvania Department of Environmental Protection (DEP). As part of this application, I will provide DEP with an accurate EIN number for the applicant entity. By filing this application with DEP, I hereby authorize DEP to confirm the accuracy of the EIN number provided with the Pennsylvania Department of Revenue. As applicant, I further consent to the Department of Revenue discussing the same with DEP prior to issuance of the Commonwealth permit or authorization.

Type or Print Name Eric David Dougherty, P.E., P.L.S.

Signature | Project Manager **Title** | 9/6/23 **Date**

ATTACHMENT B:
COPY OF CHECK FOR APPLICATION FEE

PART ONE: WATER OBSTRUCTIONS AND ENCROACHMENTS

SECTION A. APPLICATION FEES

☒ **WATER OBSTRUCTION AND ENCROACHMENT PERMIT** (Joint Permit Application)
Some activities or structures within a project may also qualify for an accumulation of General Permit fees, please mark the box above indicating an Individual Water Obstruction and Encroachment Permit AND the corresponding fee(s) in the General Permit section below those. Activities or structures not qualifying for a General Permit fee must include a disturbance fee.

☒ Administrative Filing Fee[1]		$ 1,750	+	
☒ Temporary Disturbance ($400/0.1ac)	0.2 acres x $4,000 =	$ 800	+	
☒ Permanent Disturbance ($800/0.1ac)	0.2 acres x $8,000 =	$ 1,600		= $ 3,150
		WO&E FEE subtotal (a)		$ 3,150

☐ **GENERAL PERMIT(S)** (select activity/structure(s) below, see page 4 for "#" explanation)
Some activities or structures within a project requiring an Individual Water Obstruction and Encroachment Permit may qualify for an accumulation of General Permit fees, please mark the corresponding fee(s) below but not the box above indicating a General Permit.

☐ GP-1 Fish Habitat Enhancement Structures		$ 50		= $ ____
☐ GP-2 Small Docks and Boat Launching Ramps	____ (#) x	$ 175		= $ ____
☐ GP-3 Bank Rehabilitation, Bank Protection and Gravel Bar Removal	____ (#) x	$ 250		= $ ____
☐ GP-4 Intake and Outfall Structures	____ (#) x	$ 200		= $ ____
☐ GP-5 Utility Line Stream Crossings[2]	____ (#) x ____ (#) x	$ 250		= $ ____
☐ GP-6 Agricultural Crossings and Ramps	____ (#) x	$ 50		= $ ____
☐ GP-7 Minor Road Crossings[2]	____ (#) x	$ 350		= $ ____
☐ GP-8 Temporary Road Crossings[2]	____ (#) x	$ 175		= $ ____
☐ GP-9 Agricultural Activities		$ 50		= $ ____
☐ GP-10 Abandoned Mine Reclamation		$ 500		= $ ____
☐ GP-11 Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments[1]		$ 750	+	
☐ Temporary Disturbance ($400/0.1ac)	____ acres x $4,000 =	$ ____	+	
☐ Permanent Disturbance ($800/0.1ac)	____ acres x $8,000 =	$ ____		= $ ____
☐ GP-15 Private Residential Construction in Wetlands[1]		$ 750	+	
☐ Temporary Disturbance ($400/0.1ac)	____ acres x $4,000 =	$ ____	+	
☐ Permanent Disturbance ($800/0.1ac)	____ acres x $8,000 =	$ ____		= $ ____
		GP(s) FEE subtotal (b)		$ 0

PART ONE: SECTION A. APPLICATION FEE(S) subtotal (a+b=c) $ 3,150

SECTION B. OTHER FEES

☐ Environmental Assessment for Waived Activities (§105.13(c)(2)(iv))		$ 500		$ ____
☐ Amendment to Water Obstruction and Encroachment Permit				
☐ Major Amendment[1]		$ 500	+	
☐ Temporary Disturbance	____ acres x $4,000 =	$ ____	+	$ ____
☐ Permanent Disturbance	____ acres x $8,000 =	$ ____		= $ ____
☐ Minor Amendment		$ 250		$ ____

Transfer of Water Obstruction and Encroachment Permit *does not require submission of this form; see Application for Transfer of Permit / Submerged Lands License Agreement (3150-PM-BWEW-0016)*

PART ONE: SECTION B. OTHER FEE(S) subtotal (d) $ 0

PART ONE: FEE(S) TOTAL (c+d=e) $ 3,150

DEP USE ONLY			
FEE TOTAL:	1	Permit / Authorization Number (s):	
Correct Amount:		Check #:	
Check Amount:		Payable to:	

ATTACHMENT C:

COPIES AND PROOF OF RECIEPT

ACT 14 NOTIFICATION

ACTS 67/68/127

BERAN
ENVIRONMENTAL SERVICES

2322 W Sunbury Rd.
Boyers PA 16020
(724) 735-2766 - Phone
(724) 735-9992 – Fax
cmusser@beranenvironmental.com

September 06, 2023

Lycoming County Board of Commissioners
48 West Third St.
Williamsport, PA 17701

Dear Lycoming County Board of Supervisors:

This notice is to inform you of our intent to apply for coverage under the "Joint Application for Pennsylvania Water Obstruction and Encroachment permit and U.S. Army Corps of Engineers Section 404 Permit" for the ***Phase IV Pipeline***.

Applicant Contact:	Nathan Harris, Vice President HSE Pennsylvania General Energy Co., LLC 120 Market St., Warren, PA 16365
Project Location:	Cummings & McHenry Townships, Lycoming County
Project Description:	This project will consist of the construction of 19,925 linear feet of 12" natural gas pipeline and 19,887 linear feet of two (2) 8" flexsteel waterlines within a 30' wide permanent right-of-way and temporary right-of-way that varies in width. Nine (9) streams and one (1) wetland will be crossed by the pipelines requiring a joint permit. All stream and wetland crossings will be open cut. An existing access road will also be improved as part of the project. The total disturbance area, which includes the proposed pipeline right-of-way area and workspace for the access road is 42.60 acres.

Section 1905-A of the Commonwealth Administrative Code, as amended by Act 14, requires that each applicant for a DEP permit must give written notice to the municipality(ies) and the county(ies) in which the permitted activity is located. The written notices shall be received by the municipality(ies) and county(ies) at least 30 days before the Department may issue or deny the permit.

Acts 67, 68 and 127, which amended the Municipalities Planning Code to support sound land use practices and planning efforts, direct state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure and specify that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as described in Sections 619.2 and 1105 of the Municipalities Planning Code.

Enclosed is a General Information Form we have completed for this project and a copy of a Location Map. DEP invites you to review the attached information and comment on the land use aspects of this project; please be specific to DEP when identifying any areas of conflict. If you wish to submit comments for DEP to consider in a land use review of this project, you must respond within 30 days to the DEP regional office listed below. If there are no land use comments received by the end of the comment period, DEP will assume that there are no substantive land use conflicts and proceed with the normal application review process.

Please submit any comments concerning this project within 30 days from date of receipt of this letter to the DEP Bureau of Oil and Gas Management, Surfaces Permitting Section, Eastern Regional Office, 208 W. Third Street, Suite 101, Williamsport, PA 17701. Phone: (570) 974-2602

For more information about this land use review process, visit DEP's Web site at www.depweb.state.pa.us, keyword: Land Use Reviews.

Sincerely,

Chris Musser

Chris Musser
Beran Environmental Services, Inc.

Enclosure(s): Location & NWI Map, Soils & Project Map, Completed General Permit Registration Form

Cc: File

TRK# 1Z6Y88480395738011

1.	Is there a municipal comprehensive plan(s)?	☐	☒
2.	Is there a county comprehensive plan(s)?	☒	☐
3.	Is there a multi-municipal or multi-county comprehensive plan(s)?	☐	☒
4.	Is the proposed project plan consistent with these plan(s)? If no plan exists, answer "Yes".	☒	☐
5.	Is there a municipal zoning ordinance(s)?	☐	☒
6.	Is there a joint municipal zoning ordinance(s)?	☒	☐
7.	Will the proposed project require zoning approval (e.g., special exception, conditional approval, re-zoning, variance)? If zoning approval has already been received, attach the appropriate documentation.	☒	☐
8.	Are any zoning ordinances that are applicable to this project currently the subject of any type of legal proceeding?	☐	☒
9.	Will the project be located on a site that has been or is being remediated under DEP's Land Recycling Program?	☐	☒
10.	Will the project result in reclamation of abandoned mine lands through re-mining or as part of DEP's Reclaim PA Program?	☐	☒
11.	Will the project be located in an agricultural security area or an area protected under an agricultural conservation easement?	☐	☒
12.	Will the project be located in a Keystone Opportunity Zone or Enterprise Development Area?	☐	☒
13.	Will the project be located in a Designated Growth Area as defined by the Municipalities Planning Code?	☐	☒

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number
1Z6Y88480395738011

Weight
1.00 LBS

Service

UPS Ground

Shipped / Billed On
09/06/2023

Delivered On

09/07/2023 9:55 A.M.

Delivered To
WILLIAMSPORT, PA, US

Received By

PERSUN

Please print for your records as photo and details are only available for a limited time.

Sincerely,

UPS

Tracking results provided by UPS: 09/07/2023 1:59 P.M. EST

BERAN
ENVIRONMENTAL SERVICES

2322 W Sunbury Rd.
Boyers PA 16020
(724) 735-2766 - Phone
(724) 735-9992 – Fax
cmusser@beranenvironmental.com

September 06, 2023

Cummings Township Supervisors
Darlene Macklem, Secretary
P.O. Box 117
Waterville, PA 17776

Dear Cummings Township Supervisors:

This notice is to inform you of our intent to apply for coverage under the "Joint Application for Pennsylvania Water Obstruction and Encroachment permit and U.S. Army Corps of Engineers Section 404 Permit" for the ***Phase IV Pipeline***.

Applicant Contact:	Nathan Harris, Vice President HSE Pennsylvania General Energy Co., LLC 120 Market St., Warren, PA 16365
Project Location:	Cummings & McHenry Townships, Lycoming County
Project Description:	This project will consist of the construction of 19,925 linear feet of 12" natural gas pipeline and 19,887 linear feet of two (2) 8" flexsteel waterlines within a 30' wide permanent right-of-way and temporary right-of-way that varies in width. Nine (9) streams and one (1) wetland will be crossed by the pipelines requiring a joint permit. All stream and wetland crossings will be open cut. An existing access road will also be improved as part of the project. The total disturbance area, which includes the proposed pipeline right-of-way area and workspace for the access road is 42.60 acres.

Section 1905-A of the Commonwealth Administrative Code, as amended by Act 14, requires that each applicant for a DEP permit must give written notice to the municipality(ies) and the county(ies) in which the permitted activity is located. The written notices shall be received by the municipality(ies) and county(ies) at least 30 days before the Department may issue or deny the permit.

Acts 67, 68 and 127, which amended the Municipalities Planning Code to support sound land use practices and planning efforts, direct state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure and specify that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as described in Sections 619.2 and 1105 of the Municipalities Planning Code.

Enclosed is a General Information Form we have completed for this project and a copy of a Location Map. DEP invites you to review the attached information and comment on the land use aspects of this project; please be specific to DEP when identifying any areas of conflict. If you wish to submit comments for DEP to consider in a land use review of this project, you must respond within 30 days to the DEP regional office listed below. If there are no land use comments received by the end of the comment period, DEP will assume that there are no substantive land use conflicts and proceed with the normal application review process.

Please submit any comments concerning this project within 30 days from date of receipt of this letter to the DEP Bureau of Oil and Gas Management, Surfaces Permitting Section, Eastern Regional Office, 208 W. Third Street, Suite 101, Williamsport, PA 17701. Phone: (570) 974-2602

For more information about this land use review process, visit DEP's Web site at www.depweb.state.pa.us, keyword: Land Use Reviews.

Sincerely,

Chris Musser
Beran Environmental Services, Inc.

Enclosure(s): Location & NWI Map, Soils & Project Map, Completed General Permit Registration Form

Cc: File

TRK# 1Z6Y88480397764408

1.	Is there a municipal comprehensive plan(s)?	☐	☒
2.	Is there a county comprehensive plan(s)?	☒	☐
3.	Is there a multi-municipal or multi-county comprehensive plan(s)?	☐	☒
4.	Is the proposed project plan consistent with these plan(s)? If no plan exists, answer "Yes".	☒	☐
5.	Is there a municipal zoning ordinance(s)?	☐	☒
6.	Is there a joint municipal zoning ordinance(s)?	☒	☐
7.	Will the proposed project require zoning approval (e.g., special exception, conditional approval, re-zoning, variance)? If zoning approval has already been received, attach the appropriate documentation.	☒	☐
8.	Are any zoning ordinances that are applicable to this project currently the subject of any type of legal proceeding?	☐	☒
9.	Will the project be located on a site that has been or is being remediated under DEP's Land Recycling Program?	☐	☒
10.	Will the project result in reclamation of abandoned mine lands through re-mining or as part of DEP's Reclaim PA Program?	☐	☒
11.	Will the project be located in an agricultural security area or an area protected under an agricultural conservation easement?	☐	☒
12.	Will the project be located in a Keystone Opportunity Zone or Enterprise Development Area?	☐	☒
13.	Will the project be located in a Designated Growth Area as defined by the Municipalities Planning Code?	☐	☒

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number
1Z6Y88480397764408

Weight
1.00 LBS

Service

UPS Ground

Shipped / Billed On
09/06/2023

Delivered On

09/07/2023 1:16 P.M.

Delivered To
WATERVILLE, PA, US

Received By

DARLENE

Please print for your records as photo and details are only available for a limited time.

Sincerely,

UPS

Tracking results provided by UPS: 09/07/2023 2:25 P.M. EST

BERAN
ENVIRONMENTAL SERVICES

2322 W Sunbury Rd.
Boyers PA 16020
(724) 735-2766 - Phone
(724) 735-9992 – Fax
cmusser@beranenvironmental.com

September 06, 2023

McHenry Township Supervisors
Brandi Yost, Secretary
145 Railroad St.
Cammal, PA 17723

Dear McHenry Township Supervisors:

This notice is to inform you of our intent to apply for coverage under the "Joint Application for Pennsylvania Water Obstruction and Encroachment permit and U.S. Army Corps of Engineers Section 404 Permit" for the ***Phase IV Pipeline***.

Applicant Contact:	Nathan Harris, Vice President HSE Pennsylvania General Energy Co., LLC 120 Market St., Warren, PA 16365
Project Location:	Cummings & McHenry Townships, Lycoming County
Project Description:	This project will consist of the construction of 19,925 linear feet of 12" natural gas pipeline and 19,887 linear feet of two (2) 8" flexsteel waterlines within a 30' wide permanent right-of-way and temporary right-of-way that varies in width. Nine (9) streams and one (1) wetland will be crossed by the pipelines requiring a joint permit. All stream and wetland crossings will be open cut. An existing access road will also be improved as part of the project. The total disturbance area, which includes the proposed pipeline right-of-way area and workspace for the access road is 42.60 acres.

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Enclosed is a General Information Form we have completed for this project and a copy of a Location Map. DEP invites you to review the attached information and comment on the land use aspects of this project; please be specific to DEP when identifying any areas of conflict. If you wish to submit comments for DEP to consider in a land use review of this project, you must respond within 30 days to the DEP regional office listed below. If there are no land use comments received by the end of the comment period, DEP will assume that there are no substantive land use conflicts and proceed with the normal application review process.

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For more information about this land use review process, visit DEP's Web site at www.depweb.state.pa.us, keyword: Land Use Reviews.

Sincerely,

Chris Musser

Chris Musser
Beran Environmental Services, Inc.

Enclosure(s): Location & NWI Map, Soils & Project Map, Completed General Permit Registration Form

Cc: File

TRK# 1Z6Y88480394125336

1.	Is there a municipal comprehensive plan(s)?	☐	☒
2.	Is there a county comprehensive plan(s)?	☒	☐
3.	Is there a multi-municipal or multi-county comprehensive plan(s)?	☐	☒
4.	Is the proposed project plan consistent with these plan(s)? If no plan exists, answer "Yes".	☒	☐
5.	Is there a municipal zoning ordinance(s)?	☐	☒
6.	Is there a joint municipal zoning ordinance(s)?	☒	☐
7.	Will the proposed project require zoning approval (e.g., special exception, conditional approval, re-zoning, variance)? If zoning approval has already been received, attach the appropriate documentation.	☒	☐
8.	Are any zoning ordinances that are applicable to this project currently the subject of any type of legal proceeding?	☐	☒
9.	Will the project be located on a site that has been or is being remediated under DEP's Land Recycling Program?	☐	☒
10.	Will the project result in reclamation of abandoned mine lands through re-mining or as part of DEP's Reclaim PA Program?	☐	☒
11.	Will the project be located in an agricultural security area or an area protected under an agricultural conservation easement?	☐	☒
12.	Will the project be located in a Keystone Opportunity Zone or Enterprise Development Area?	☐	☒
13.	Will the project be located in a Designated Growth Area as defined by the Municipalities Planning Code?	☐	☒

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number
1Z6Y88480394125336

Weight
1.00 LBS

Service

UPS Ground

Shipped / Billed On
09/06/2023

Delivered On

09/07/2023 4:10 P.M.

Delivered To
CAMMAL, PA, US

Received By

FRONT DOOR

Left At
Receiver

Please print for your records as photo and details are only available for a limited time.

Sincerely,

UPS

Tracking results provided by UPS: 09/08/2023 8:12 A.M. EST

ATTACHMENT D:
CULTURAL RESOURCE NOTICE

Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

August 21, 2023

Nathan Harris
Pennsylvania General Energy Company LLC
120 Market Street
Warren PA 16365

RE: ER Project # 2022PR05214.005, Phase IV Pipeline , Department of Environmental Protection, Cummings Township, Lycoming County

Dear Nathan Harris:

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.

Archaeological Resources
No Archaeological Concerns - Environmental Review - No Historic Properties - Archaeological

Thank you for the additional information for this project. Based on the information received and available within our files, it is our opinion that there are no archaeological historic properties (resources listed in or eligible for listing in the National Register) present within the area of potential effect. Should the scope of the project change and/or should you be made aware of historic property concerns, you will need to reinitiate consultation with our office using PA-SHARE.

For questions concerning archaeological resources, please contact Justin McKeel at jusmckeel@pa.gov.

Sincerely,

Emma Diehl
Environmental Review Division Manager

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 2022PR05214

Project Name &/or Agency Tracking #: Phase IV Pipeline

Agency: DEP **Applicant:** Pennsylvania General Energy Co., LLC

Preparers Name and affiliation: David Rue, Ph.D., Rue Environmental, LLC

Date Prepared: August 7, 2023

Project Area County/Municipality (list all)

County	Municipality
Lycoming	Cummings 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
Cammal	2023

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

Physiographic Zone
Deep Valleys Section

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

Sub-basin	Watershed	Major Stream	Minor Stream
Susquehanna River	9A	Pine Creek	Bark Cabin Run
Susquehanna	9A	Pine Creek	Benny's Run

3. Basic Field Conditions:

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

Area of APE / Project Area in hectares: 1.2 Hectares tested: 1.2

General Description of APE / Project Area: The Area of Potential Effects (APE) for the project is a narrow alignment on an upland setting in State Game Lands 75. The APE is approximately 22 m wide at its widest and 568 m in length. Slopes around the project area generally range from 10-12%. The setting contained thick summer vegetation dominated by mountain laurels and was heavily wooded with hardwood forest species.

Type of Proposed Project / Impact: The project involves gas pipeline construction.

Date of field investigation(s): July 27 and 28, 2023
Description of Field Conditions including percentage of surface visibility: Thick, summer forest understory vegetation, 0% surface visibility.

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

PASS Site Number	Reason not re-located
N/A	

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.)

Figures 1 and 2 show the project area on the Cammal USGS 7.5-minute quadrangle and a recent aerial photo respectively. Photos 1-2 show field conditions. Most of the APE is on soils mapped Clymer very stony loam 8 to 25 percent slopes (CnD) and Cookport channery loam very stony 8 to 25 percent slopes (CxB) (USDA n.d.). Elevations in the APE range from approximately 1465 feet above mean sea level to 1600 feet, increasing generally from north to south.

The Statewide Precontact Probability Model on PA-Share considers most of the APE to have a low probability to contain information about precontact peoples. The historical atlases (Warren 1861; Pomeroy 1873) show no features (not reproduced). A lack of buildings within the APE continues on a 1939 aerial photograph and the historical USGS quadrangle (not reproduced here).

The study was completed in compliance with Pennsylvania State Historic Preservation Office (SHPO) guidelines (SHPO 2022). A visual reconnaissance of the APE was completed, and no features of interest were noted. The subsurface field effort included the excavation of 18 Shovel Test Pits (STPs), at 30-m intervals (Figure 3). Representative STP profiles are provided in Figure 4.

The Munsell color (value and chroma) of the 10 to 34-cm-thick silty clay loam A soil horizon varied remarkably within the APE, while the B horizon was typically a 10Y/R 5/6 silty clay. The A horizon color included 10YR 3/3, 10YR 4/4, 10YR 5/3, and 10YR 6/4. Channers and stone content were less than what would be expected on the soil mapping unit descriptions. All results were negative and in general the setting of the APE suggested a very low probability for precontact occupation.

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	0 sq. m.	0 %		0
Moderate	0 sq. m.	0 %		0

Low	1200 sq. m.	100 %	STPs 30 m	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

List all other attachments to this Negative Survey Form:

Attachment Type

References Cited

Pennsylvania State Historic Preservation Office (SHPO)
2022 Guidelines for Archaeological Surveys.

USDA
n.d. Web Soil Survey, USDA online soil survey. Accessed June 2023.
1939 Aerial Photograph series of Lycoming County, Pennsylvania.

US Geological Survey
1930 Warrensville, Pennsylvania 1:48000 scale Quadrangle.
2023 Montoursville North, Pennsylvania 7.5-minute Quadrangle.
2023 Huntersville, Pennsylvania 7.5-minute Quadrangle.

Pomeroy, A. & Company
1873 Cascade and Plunketts Creek, Atlas of Lycoming County. A. Pomeroy & Company Puclishers

Walling, H. F., Tilden, S. D. & H.F. Walling's Map Establishment
1861 Topographical map of Lycoming County, Pennsylvania: from actual surveys. New York: S.D. Tilden. [Map] Retrieved from the Library of Congress, https://www.loc.gov/item/2012592210/.

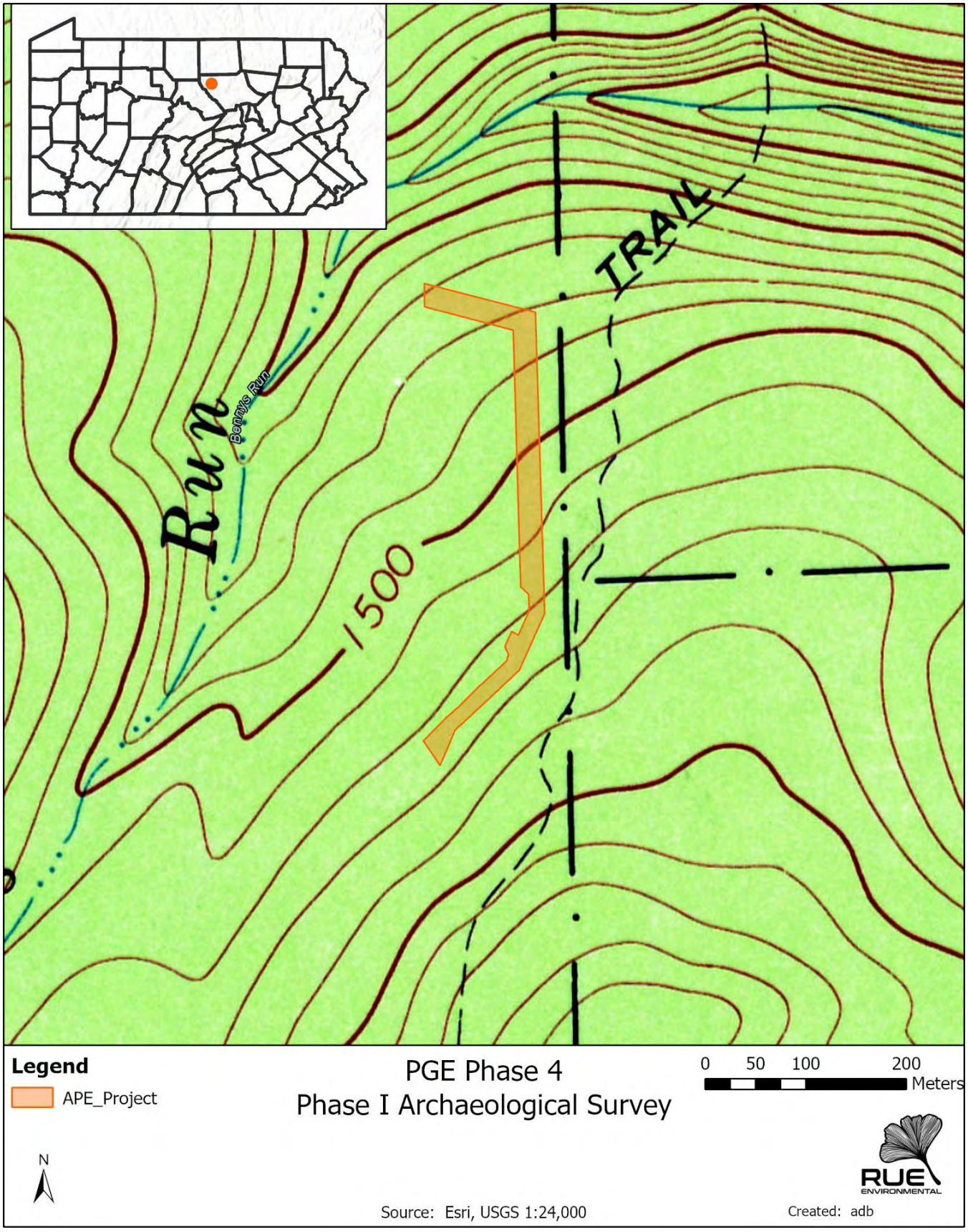


Figure 1. Overview of APE on Topographic Map.

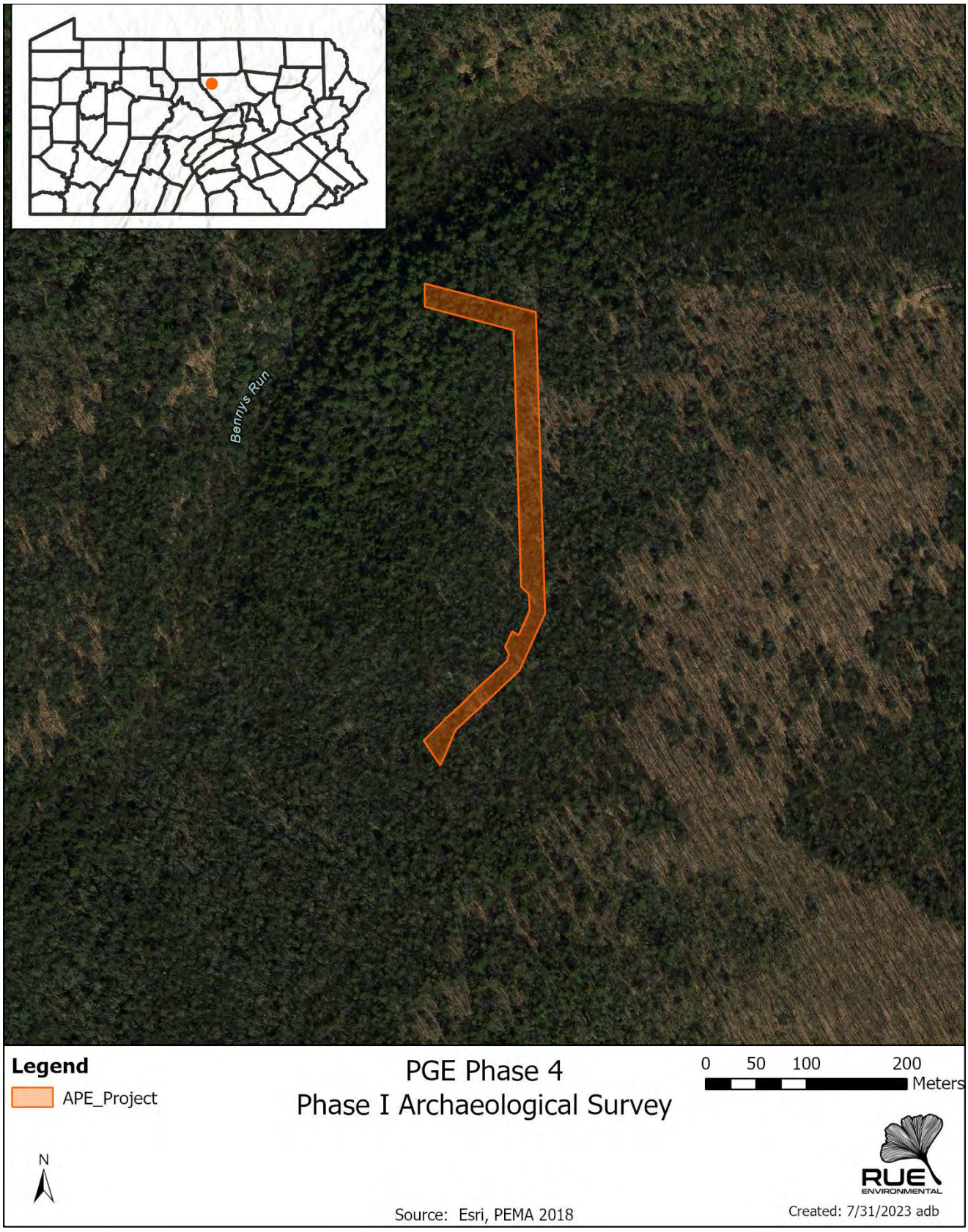


Figure 2. Overview of APE on Aerial Imagery.

Figure 3. Overview of STP Locations.

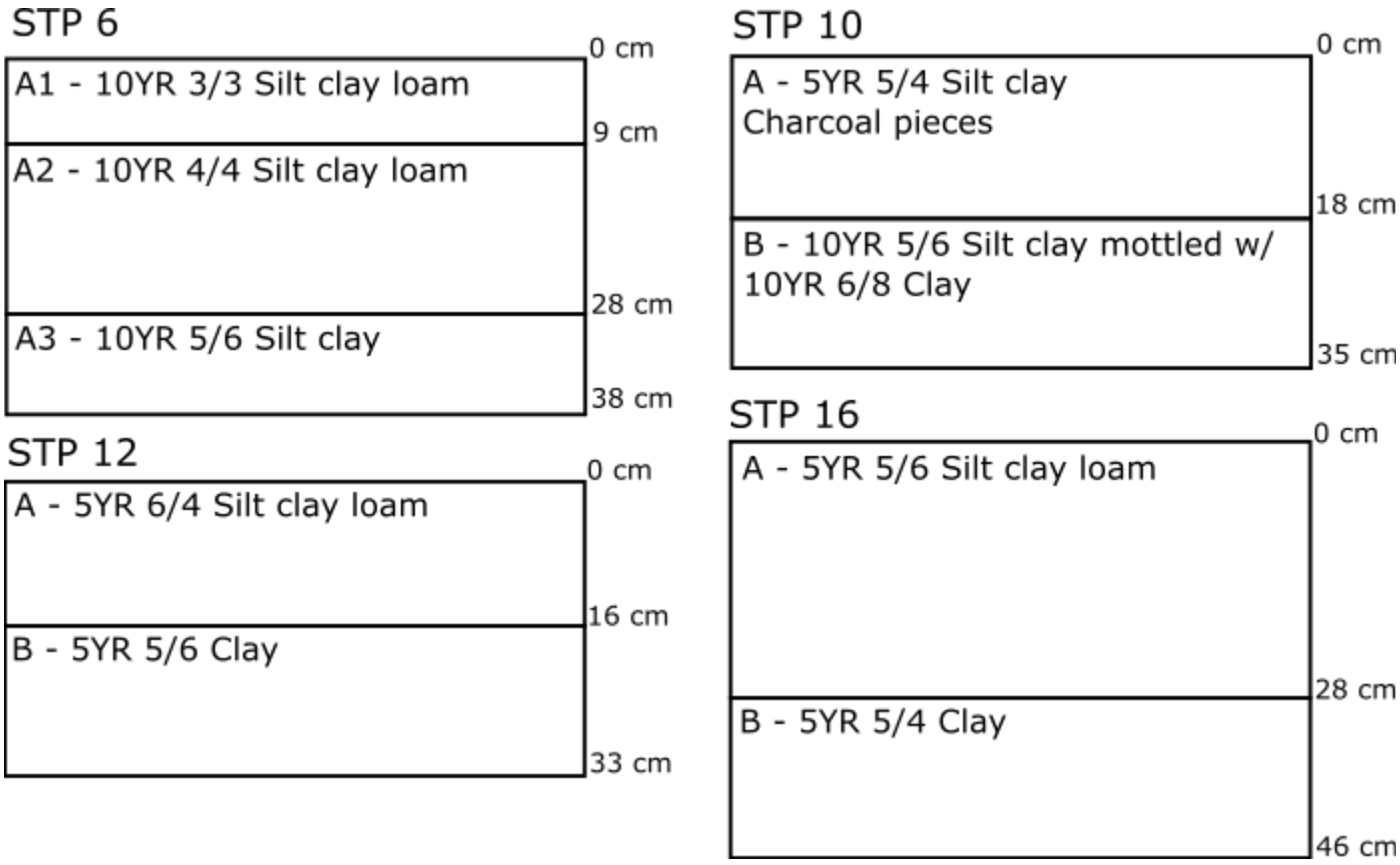


Figure 4. Representative STP Profiles.

Photo 1. Conditions in Northern Part of APE.

Photo 2. Conditions in Southern Part of APE.

ATTACHMENT F:

BOG TURTLE HABITAT SCREENING

N/A

ATTACHMENT G:
PENNSYLVANIA NATURAL
DIVERSITY INVENTORY

pennsylvania
FISH AND BOAT COMMISSION

August 10, 2023

IN REPLY REFER TO
SIR# 57085

Pennsylvania General Energy
Jaron Vanord
120 Market Street
Warren, Pennsylvania 16365

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 773242_2
Phase IV (SGL 75 Pad F Pipeline)
Cummings Township, McHenry Township: LYCOMING County

Dear Jaron Vanord:

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

According to your most recent submission, minor changes have been proposed to the previously approved pipeline alignment. We have reviewed these changes and determined they avoid the critical habitat identified during your 2013 and 2014 Timber Rattlesnake habitat and presence/presumed absence surveys. Therefore, the project remains unlikely to negatively impact the Timber Rattlesnake or its critical habitat provided the recommendations detailed in our letter of November 21st, 2022 for SIR# 57085 are adhered to.

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

If you have any questions regarding this review, please contact Jordan R. Allison at 814-359-5236 or jorallison@pa.gov and refer to the SIR # 57085. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

Jordan R. Allison, Chief
Resource Extraction Section

/JRA/dn

1. PROJECT INFORMATION

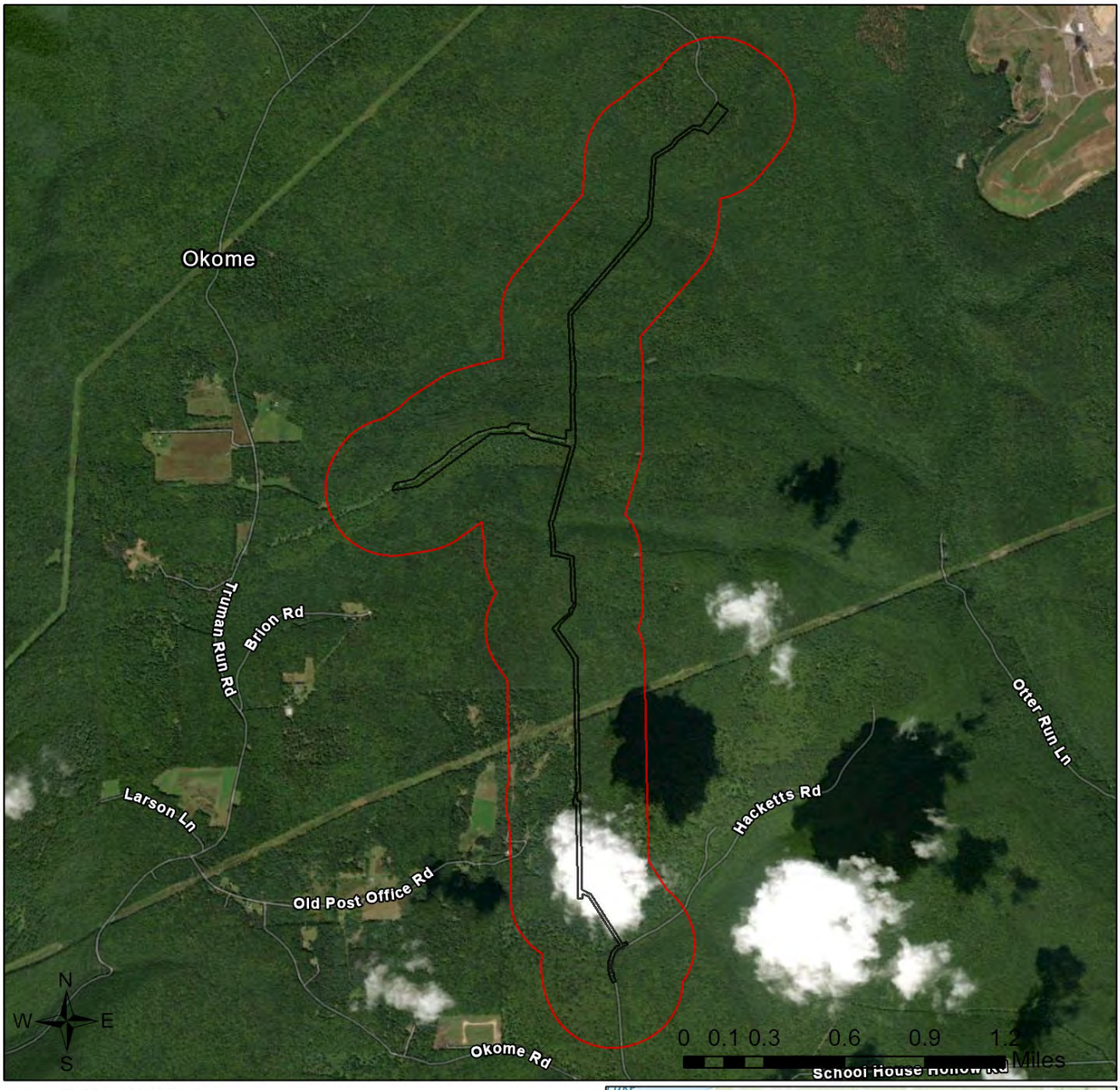
Project Name: **Phase IV (SGL 75 Pad F Pipeline)**
Date of Review: **8/3/2023 09:27:40 AM**
Project Category: **Energy Storage, Production, and Transfer, Energy Transfer, Pipeline (e.g., gas, oil) -- NEW (construction of new line in a new location)**
Project Area: **53.21 acres**
County(s): **Lycoming**
Township/Municipality(s): **CUMMINGS TOWNSHIP; MCHENRY TOWNSHIP**
ZIP Code:
Quadrangle Name(s): **CAMMAL**
Watersheds HUC 8: **Pine**
Watersheds HUC 12: **Otter Run**
Decimal Degrees: **41.435777, -77.396448**
Degrees Minutes Seconds: **41° 26' 8.7975" N, 77° 23' 47.2128" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

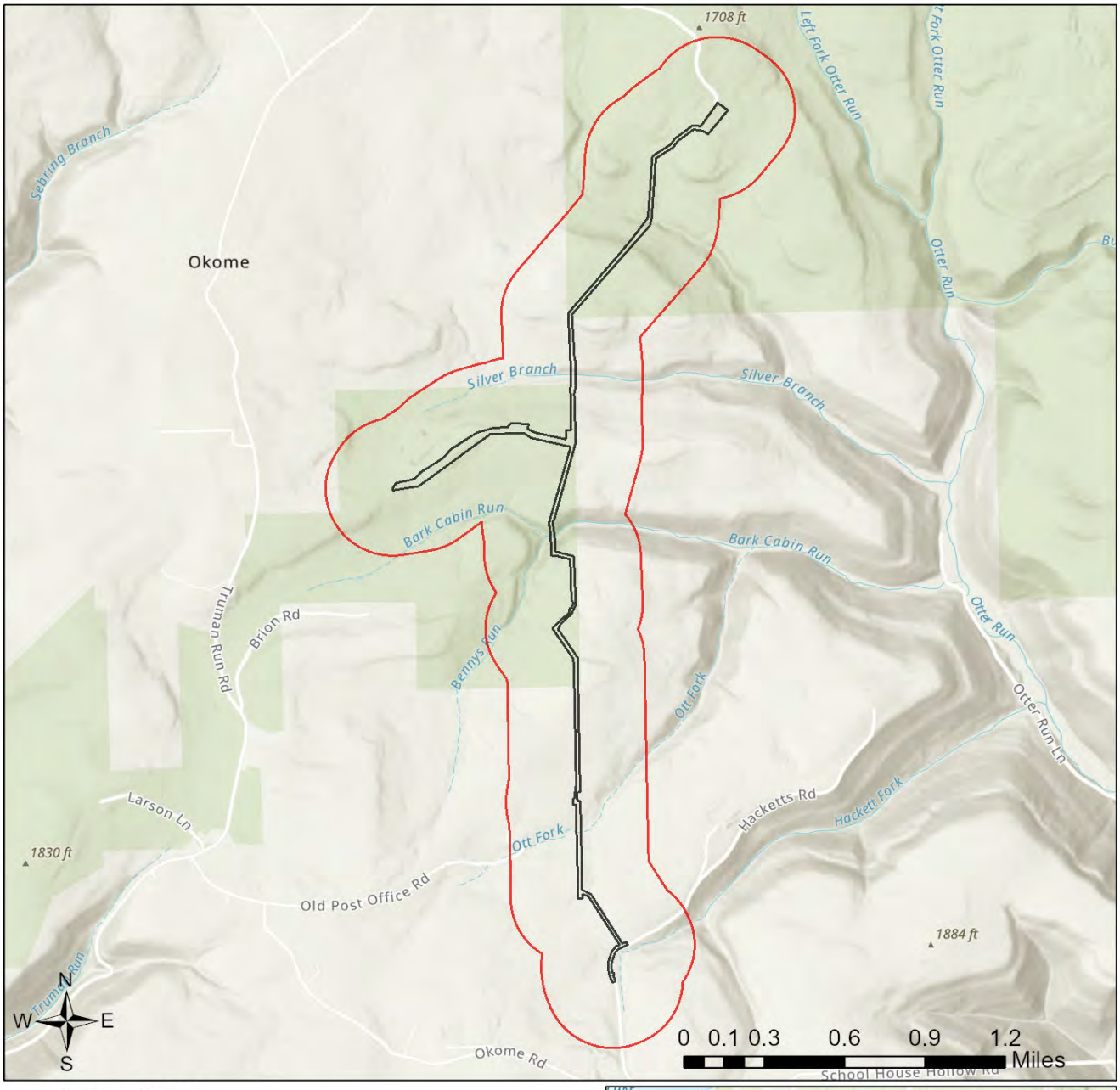
As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Phase IV (SGL 75 Pad F Pipeline)



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Phase IV (SGL 75 Pad F Pipeline)



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Special Concern Species*

U.S. Fish and Wildlife Service

RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email the following information to the agency(s) (see AGENCY CONTACT INFORMATION). Instructions for uploading project materials can be found here. This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies (but not USFWS).
*If information was requested by USFWS, applicants must email, or mail, project information to IR1_ESPenn@fws.gov to initiate a review. USFWS will not accept uploaded project materials.

Check-list of Minimum Materials to be submitted:
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
In addition to the materials listed above, USFWS REQUIRES the following
____**SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

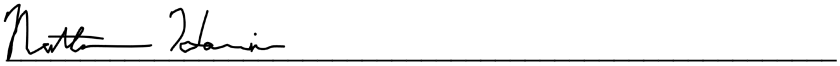
PA Game Commission
Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Nathan Harris
Company/Business Name: Nathan Harris
Address: 120 Market St.
City, State, Zip: Warren, PA 16365
Phone: (814) 723-3230 Fax: (814) 723-3502
Email: nathanharris@penngeneralenergy.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.



applicant/project proponent signature

08-10-2023
date

ATTACHMENT H:
SITE PLAN

GENERAL NOTES

A copy of the approved erosion and sediment control plan must be available at the project site at all times

The source of contours shown on this plan is PA Spatial Data Access (PASDA) USGS QL2 LIDAR. The contour interval shown on the following plan sheets is at a two (2) foot interval.

Utilities shown on this plan are for reference purposes only. It shall be the responsibility of the contractor to verify the exact location of all utilities prior to any excavation by notifying The Pennsylvania One Call System at least three days in advance by calling 1-800-242-1776.

At least 7 days prior to starting any earth disturbance activities (including clearing and grubbing), the PERMITTEE shall invite all co-permittees, operators, licensed professional or designees, and a representative from the Department of Environmental Protection to an on-site preconstruction meeting.

Erosion and sediment control measures will be installed or constructed and functional before site disturbance begins in the drainage areas to those control measures.

All earth disturbance activities shall proceed in accordance with the sequence provided on this plan. Deviation from the sequence must be approved in writing by DEP prior to implementation.

Equipment servicing or fueling shall not occur within 50 feet of any stream or wetland.

Clearing, grubbing and topsoil stripping shall be limited to those areas described in each stage of the construction sequence. General site clearing, grubbing and topsoil stripping may not commence in any stage or phase of the project until the E&S BMPs specified by the Construction Sequence for that stage or phase have been installed and are functioning as described in this document.

At no time shall construction vehicles be allowed to enter areas outside the limit of disturbance boundaries shown on this plan. These areas must be clearly marked and/or fenced off before clearing and grubbing operations begin.

Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2H:1V or flatter.

Temporary Erosion Control Blankets or soil binders and flocculants with polyacrylamides such as Flexterra, or a comparable alternative (see Table 11.7 on Sheet 5) must be installed a minimum of 100' on either side of the streams and/or wetlands, and on all slopes 3:1 and greater. Temporary Erosion Control Blankets must be biodegradeable and must not contain long-term synthetic netting.

Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate BMPs to minimize the potential for erosion and sediment pollution and notify the regional office of DEP.

All off-site waste and borrow areas must have an E&S Plan approved by the DEP fully implemented prior to being activated.

All pumping of water from any work area shall be done according to the procedure described in this plan, over undisturbed vegetated areas.

Until the site is stabilized, all erosion and sediment BMPs must be maintained properly. Maintenance must include inspections of all erosion and sediment BMPs after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching and renetting must be performed immediately. If erosion and sediment control BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required.

A log showing dates that E&S BMPs were inspected as well as any deficiencies found and the date they were corrected shall be maintained on the site and be made available to regulatory agency officials at the time of inspection.

Sediment tracked onto any public roadway or sidewalk shall be returned to the construction site immediately each work day and disposed in the manner described in this plan. In no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer or surface water.

All sediment removed from BMPs shall be disposed of in the manner described on the plan drawings.

Areas which are to be topsoiled shall be scarified to a minimum depth of 4 inches prior to placement of topsoil. Areas to be vegetated shall have a minimum 4 inches of topsoil in place prior to seeding and mulching where the native soil has such depth. Fill outslopes shall have a minimum of 2 inches of topsoil.

All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc. shall be compacted in accordance with local requirements or codes.

All fills shall be placed in compacted layers not to exceed 9 inches in thickness.

Fill materials shall be free of frozen particles, brush, roots, sod or other foreign or objectionable materials that would interfere with or prevent construction of satisfactory fills.

Frozen materials or soft, mucky or highly compressible materials shall not be incorporated into fills.

Fill shall not be placed on saturated or frozen surfaces.

All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated.

Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.

Upon temporary cessation of an earth disturbance activity or any stage or phase of an activity where a cessation of earth disturbance activities will exceed 4 days, the site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities.

Permanent stabilization is defined as a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding or other movements.

E&S BMPs must remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by DEP.

Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the PADEP for an inspection prior to removal/conversion of the E&S BMPs.

After final site stabilization has been achieved, temporary E&S BMPs must be removed or converted to permanent post construction stormwater management BMPs. Areas disturbed during removal or conversion of the BMPs must be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions should be done only during the germinating season.

Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the PADEP to schedule a final inspection.

Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site, or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties being instituted by the Pennsylvania Department of Environmental Protection as defined in Section 602 of the Pennsylvania Clean Streams Law. The Clean Streams Law provides for up to $10,000 per day in civil penalties, up to $10,000 in summary criminal penalties, and up to $25,000 in misdemeanor criminal penalties for each violation.

Site Soil Analysis

Soils identified within the disturbance area of the project on Figure 2 includes Clymer, Cookport, Dekalb, Lehew and Leck Kill. These soils have varying limitations include erodibility, cutbanks cave, corrosive to concrete or steel, low strength, piping, poor topsoil, high water table and potentially hydric. The above limitations will be addressed in the following ways:

1. Erodible soils: An increased emphasis on inspection of erosion and sedimentation controls will be placed on soil units with this limitation.
2. Cut banks cave: Areas where cut banks occur will be seeded and mulched as specified within this plan resulting in a vegetative cover that will provide adequate protection to cut banks. Slopes 3:1 and greater will utilize erosion control blankets.
3. Corrosive to concrete and steel: No concrete structures are proposed within this plan. Steel lines that lack a corrosive barrier such as primer and paint form a natural patina which adds in the protection against corrosion.
4. High water table: This limitation takes into account the seasonal variation in water table elevations, during construction activities within soil units with this limitation the operator will remain cognitive of this limitation and take precautions as necessary.
5. Low strength: This limitation has been addressed by the construction standards to be used within fill slope areas. These areas are to be compacted by sheep's foot or pad roller. The loose lift thickness must be nine inches or less and the maximum particle size is six inches. Five passes of the compaction equipment over the entire surface of each lift is required. Dam embankment compaction to visible non-movement is required.
6. Piping: Piping has been addressed through the construction practices detailed above within the low strength section.
7. Poor topsoil: This limitation has been addressed through the use of supplements such as lime and fertilizer during seeding / stabilization measures.
8. Potentially hydric soils: This limitation infers the potential for wetlands on site. During the site delineation, seventeen (17) wetlands and fifteen (15) watercourses were identified within the delineation boundary.

Limiting Soil Characteristics

Map Symbol	Soil Name	Erodible	Cut Banks Cave	Corrosive to Concrete or Steel	High Water Table	Low Strength	Piping	Poor Topsoil	Potentially Hydric
CmB	Clymer channery loam, 3-8% slopes	X	X	C		X	X	X	X
CmC	Clymer channery loam, 8-15% slopes	X	X	C		X	X	X	X
CnB	Clymer very stony loam, 0-8% slopes	X	X	C		X	X	X	X
CnD	Clymer very stony loam, 8-25% slopes	X	X	C		X	X	X	X
CoB	Cookport loam, 3-8% slopes	X	X	C/S	X	X	X	X	X
CxB	Cookport channery loam, 0-8% slopes	X	X	C/S	X	X	X	X	X
CxD	Cookport channery loam, 8-25% slopes	X	X	C/S	X	X	X	X	X
DkD	Dekalb very stony sandy loam, 8-25% slopes		X	C		X	X	X	
DlE	Dekalb and Lehew very stony sandy loams, 25-80% slopes		X	C		X	X	X	
LkB	Leck kill channery silt loam, 3-8% slopes		X	C		X	X	X	

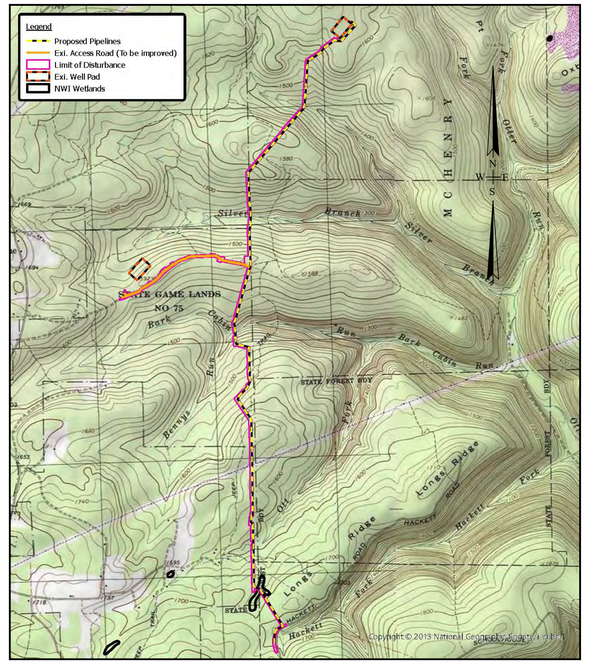
Disturbed Area Including Perimeter E & S Controls

Total (Acres) 42.60 REV. 42.17

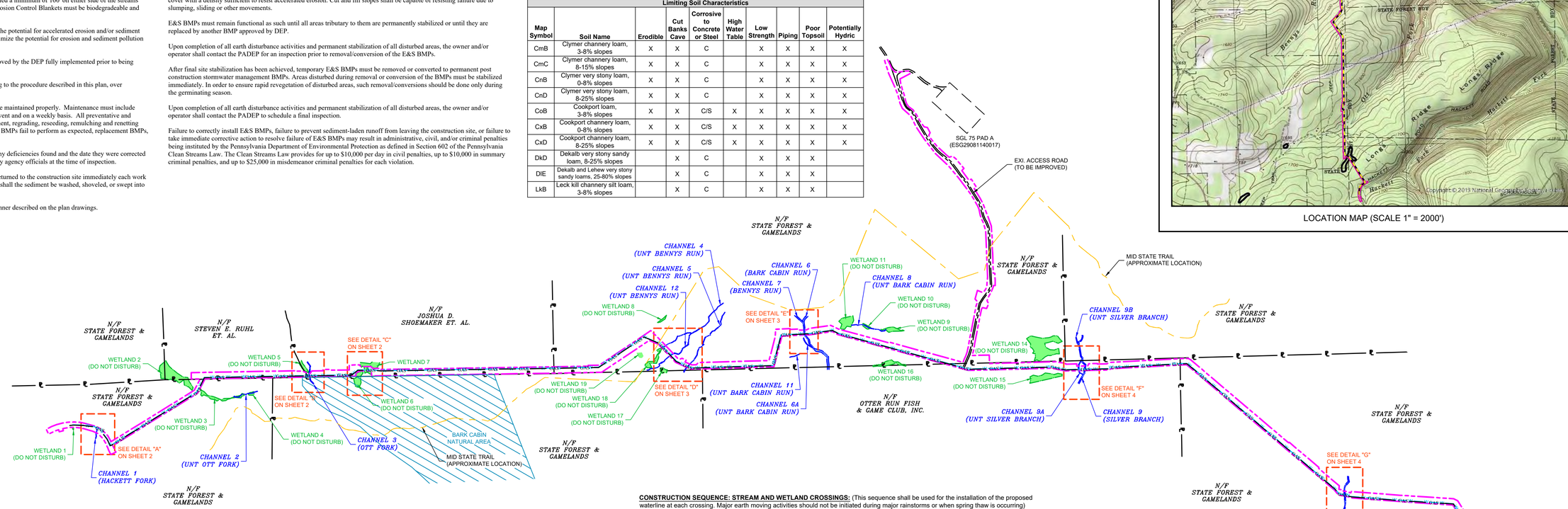
Watershed Information: Pipeline is within the following watersheds:

Hackett Fork: CWF (D), EV (E)
Ott Fork: CWF (D), HQ-CWF (E)
Bennys Run: CWF (D), HQ-CWF (E)
Bark Cabin Run: CWF (D), HQ-CWF (E)
Silver Branch: CWF (D), HQ-CWF (E)

All designations are from 025 PA Code, Chapter 93 (D), or the PA DEP Existing Use Classifications (E).



LOCATION MAP (SCALE 1" = 2000')



CONSTRUCTION SEQUENCE: PIPELINE (Major earth moving activities should not be initiated during major rainstorms or when spring thaw is occurring)

Upon completion of clearing and grubbing, perimeter erosion and sedimentation control measures will be installed or constructed and functional before pipeline construction operations begin in the drainage areas to those control measures, except for the deployment of the Compost Filter Socks, as they require access by a truck prior to installation.

Mark the limits of the temporary and permanent pipeline right-of-way within the project area.

1. When installing the pipelines, excavate only the length of trench required for one day's work.
2. Construct the Rock Construction Entrances in the locations shown on the plan and in accordance with the standard detail on Sheet 5.
3. Mark the limits of the temporary and permanent pipeline right-of-way within the project area.
4. Clear and Grub the pipeline right-of-way in sections or as per landowner stipulations, placing material along the fringes of the ROW.
5. Compost Filter Socks shall be installed based upon field conditions along the downgrade side of all exposed areas as work progresses. As areas are backfilled, graded and stabilized, the Compost Filter Socks may be moved to the next appropriate location.
6. Construct Waterbars with Sediment Barrier Outlets (or Broad-Based Dips with Compost Filter Socks) along the pipeline right-of-way at the spacing designated in Table 1 on Sheet 5 and where indicated on the plans.
7. Excavate the trench placing the material on the upslope side of the right-of-way to serve as a temporary diversion for upslope runoff during pipeline construction. Take care to separate topsoil from subsoil.
8. Use pumped water filter bags with compost filter socks to remove any water existing within the trench as needed.
9. Install proper bedding material and place the pipeline in the trench. Trench spoil shall be placed on the upslope side of right-of-way to serve as a temporary diversion for upslope runoff during pipeline installation.
10. Install trench plugs at the designated areas as specified in the Trench Plug detail on Sheet 5.
11. Backfill the open trench, placing the topsoil last as the final grade in disturbed areas containing only the pipeline.
12. Immediately stabilize said areas as per the permanent stabilization specifications on Sheet 5 once final grade is reached.
13. All disturbed areas shall be immediately stabilized as per the temporary stabilization specifications on Sheet 5.
14. Finish Grade and repair all Waterbars (or Broad-Based Dips) to their permanent condition at the designated locations in accordance with the spacing specifications.
15. Scarify, lime, fertilize, seed and mulch all remaining disturbed areas as per the specifications in this plan or suitable alternative.
16. Install temporary erosion control blankets a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Temporary erosion control blankets must be biodegradable and must not contain long-term synthetic netting.
17. After final stabilization (minimum uniform 70% perennial vegetative cover and/or permanent stabilization) has been achieved, temporary erosion and sedimentation control measures shall be removed.
18. Any waste material accumulated during construction, which will not be reused in later construction, shall be removed from the site and properly disposed of at a PADEP approved facility.

Upon temporary cessation of an earth disturbance activity or any stage or phase of an activity where a cessation of earth disturbance activities will exceed 4 days, the site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities.

CONSTRUCTION SEQUENCE: STREAM AND WETLAND CROSSINGS: (This sequence shall be used for the installation of the proposed waterline at each crossing. Major earth moving activities should not be initiated during major rainstorms or when spring thaw is occurring)

Upon completion of clearing and grubbing, perimeter erosion and sedimentation control measures will be installed or constructed and functional before pipeline construction operations begin in the drainage areas to those control measures, except for the deployment of the Compost Filter Socks, as they require access by a truck prior to installation. Construction through wetlands should proceed quickly so that permanent wetland seed mixes (see "ERNMX-120: OBL-FACW Perennial Food & Cover Wetland Mix" listed in the Erosion & Sedimentation Control Plan) prevent choking out the desired native wetland vegetation. All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species. Only weed free mulch shall be used in all disturbed areas.

Please note: Equipment may not be refueled within the jurisdictional floodway of any watercourse or within 50 feet of any body of water (025 PA code chapter 78a § 78a.6 (e)).

1. Stream and Wetland Crossings should only be performed during low or no flow conditions.
2. Utilize a Coffer Dam and Pump Bypass for all stream crossings.
3. If tracking of equipment across the stream channel is necessary, use a temporary bridge or suitable alternative. Temporary Wood Mats or other suitable low impact movable device shall be used if crossing of the wetland areas should be necessary.
4. Clean accumulated sediments from any temporary wood mats at stream channels daily to prevent sediments from reaching said stream channels.
5. Mark the limits of disturbance in the vicinity of the proposed crossings.
6. Install Cofferdams (Sandbags) on the upstream and downstream sides of the work area.
7. Use a bypass pump to convey flows past the work area as necessary.
8. Install Compost Filter Socks below the proposed soil stockpile areas and as necessary to prevent sediment from entering the stream.
9. Stumps are to remain within the forested riparian buffers (within the temporary right-of-way) at all pipeline stream crossings to maintain the stability of these stream embankments. Stumps will be cut flush with or ground slightly below the surface.
10. Install Waterbars with Sediment Barrier Outlets upslope of the streams/wetlands.
11. Excavate the trench for the proposed pipelines. Place the material in the designated stockpile areas, taking care to separate the topsoil from the subsoil.
12. Use pumped water filter bags to remove water from the open trenches as necessary.
13. Install proper bedding material and place the pipelines in the trench. All pipelines must be installed a minimum of three (3) feet below the stream bed.
14. Place Trench Plugs around the pipelines on either side of the stream bed, 50' upslope from the stream bank and on either side of Wetland 7.
15. Finish Grade and repair all Waterbars (or Broad-Based Dips) to their permanent condition at the designated locations in accordance with the spacing specifications.
16. Backfill the open trench, placing the topsoil last as the final grade. Where the trench crosses the stream, place stone to stabilize the surface to prevent erosion.
17. Scarify, lime, fertilize, seed and mulch (weed free mulch only) all upland disturbed areas as per the specifications in this plan or suitable alternative; and all wetland and riparian areas as per the specifications for such areas listed on Sheet 5 of this plan.
18. Install temporary erosion control blankets a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Temporary erosion control blankets must be biodegradable and must not contain long-term synthetic netting.
19. After final stabilization (minimum uniform 70% perennial vegetative cover and/or permanent stabilization) has been achieved, temporary erosion and sedimentation control measures shall be removed.
20. Any waste material accumulated during construction, which will not be reused in later construction, shall be removed from the site and properly disposed of at a PADEP approved facility.

NOTE: Upon temporary cessation of an earth disturbance activity or any stage or phase of an activity where a cessation of earth disturbance activities will exceed 4 days, the site shall be immediately seeded, mulched, or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities.

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

Eric David Dougherty
Professional Engineer
License # PE-057537

TOTAL IMPACTS FOR NON-WAIVED WATERCOURSES

RESOURCE	IMPACT TYPE	IMPACT AREA (SQ. FT.)	IMPACT AREA (ACRES)
WETLANDS	PERMANENT INDIRECT	808	0.019
	TEMPORARY DIRECT	412	0.010
	TEMPORARY INDIRECT	1,076	0.025
STREAMS	PERMANENT INDIRECT	308	0.008
	TEMPORARY DIRECT	647	0.016
	TEMPORARY INDIRECT	1,855	0.044
FLOODWAY*	PERMANENT INDIRECT	2,763	0.064
	TEMPORARY DIRECT	1,674	0.038
	TEMPORARY INDIRECT	5,652	0.130

* Floodway Impacts exclude Stream Channel and Wetland Impacts.
** Please see Attachment J and Attachment T for accounting of resources impacts.

TOTAL IMPACTS FOR WAIVED WATERCOURSES (105.12(2)(a))

RESOURCE	IMPACT TYPE	IMPACT AREA (SQ. FT.)	IMPACT AREA (ACRES)
STREAMS	PERMANENT INDIRECT	82	0.002
	TEMPORARY DIRECT	166	0.004
	TEMPORARY INDIRECT	483	0.011
FLOODWAY*	PERMANENT INDIRECT	145	0.003
	TEMPORARY DIRECT	425	0.010
	TEMPORARY INDIRECT	1,885	0.043

* Floodway Impacts exclude Stream Channel and Wetland Impacts.
** Please see Attachment J and Attachment T for accounting of resources impacts.

LEGEND

- EXISTING ROAD
- EXISTING ACCESS ROAD
- W PROPOSED WATERLINE
- LIMIT OF DISTURBANCE (PERMANENT R/W AND TEMPORARY R/W COMBINED)
- EXISTING STREAM
- EXISTING WETLAND
- BARK CABIN NATURAL AREA

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PA LAW REQUIRES
3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
1-800-242-1776

SCALE: 1" = 600' 300' 600' 1200' FEET

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ERIC DAVID DOUGHERTY — ENGINEER — PE-057537 — APR 05 2024

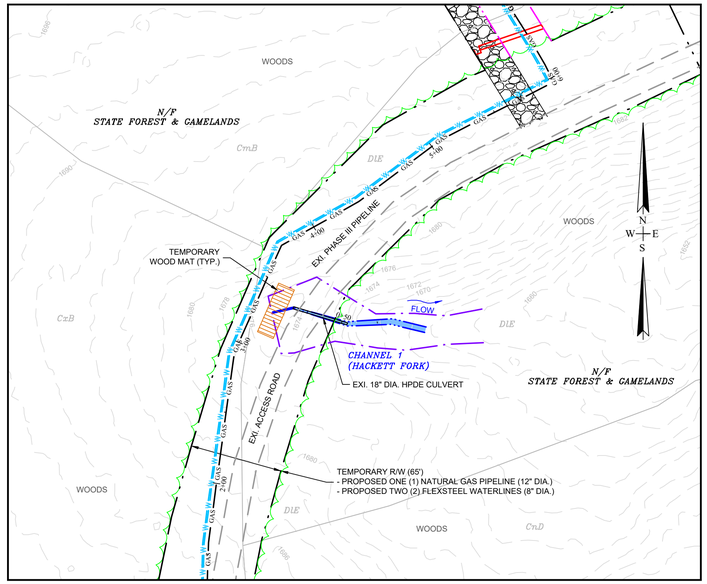
REVISIONS
04/05/2024 Revised LOD, Added Bark Cabin Natural Area and Mid State Trail

SHEET 1 OF 5

JOINT PERMIT APPLICATION
SITE PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared by:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

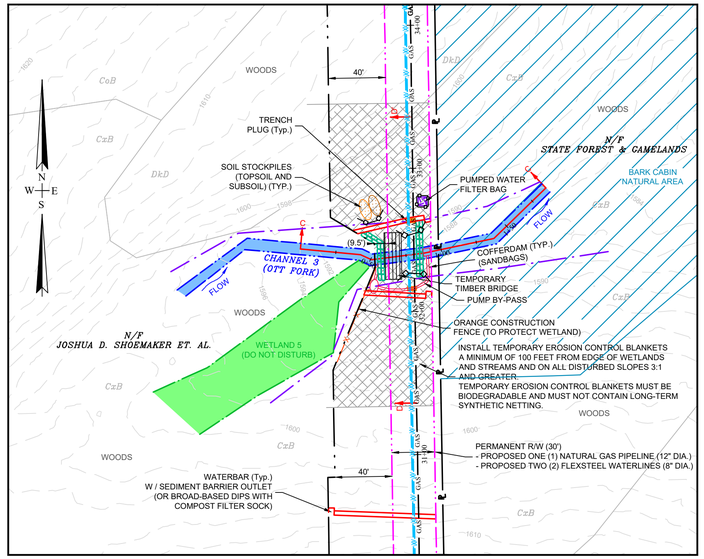


DETAIL "A"

Scale: 1" = 50' 25 50 100 Feet

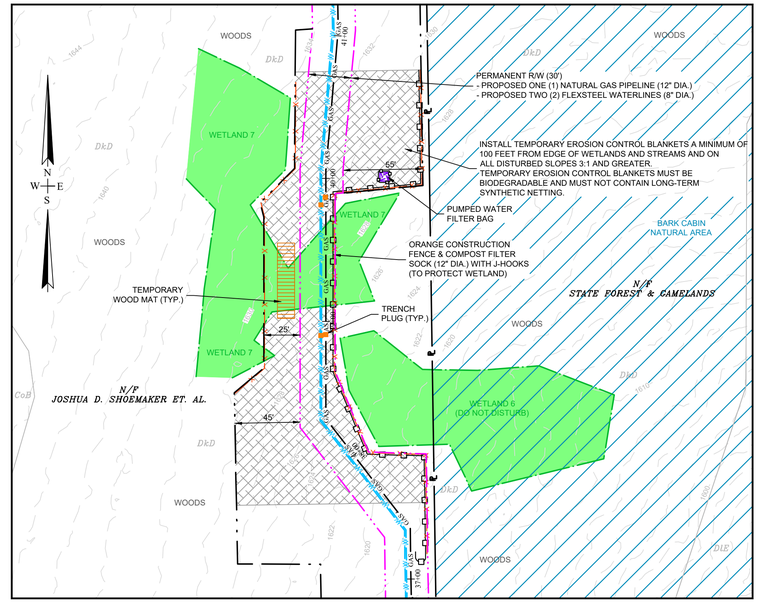
CHANNEL 1 - UPSTREAM

CHANNEL 1 - DOWNSTREAM



DETAIL "B"

Scale: 1" = 50' 25 50 100 Feet



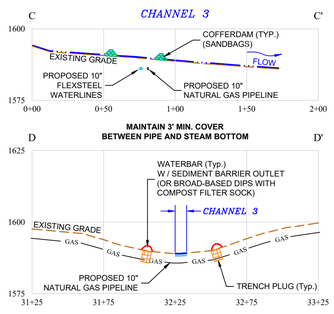
DETAIL "C"

Scale: 1" = 50' 25 50 100 Feet

MAINTAIN MIN. 3' COVER BETWEEN PIPE AND STREAM BOTTOM (ALL STREAM CROSSINGS)

EQUIPMENT SERVICING OR FUELING SHALL NOT OCCUR WITHIN 50 FEET OF ANY STREAM OR WETLAND.

NOTE: HACKETT FORK AND OTT FORK ARE LISTED AS CLASS A WILD TROUT STREAMS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND APRIL 1 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.



CHANNEL 3 - UPSTREAM

CHANNEL 3 - DOWNSTREAM

WETLAND 7

NOTES: All work for the proposed crossings as shown shall be completed under Joint Permit authorization.

All underground utility crossings will be completed by open-cut.

Cofferdams (Sandbags) shall be installed upstream and downstream of the proposed crossing and a by-pass pump shall be used to pump stream flow around the construction area.

A Pumped Water Filter Bag shall be placed a minimun of 10' from all streams and wetlands and shall be used to dewater the construction area as necessary. Compost Filter Socks shall be installed below the Pumped Water Filter Bag.

The proposed underground utility must be installed below the stream bed with a minimum of 3 feet of cover.

Wood mats or other low-impact movable devices may be used to track construction equipment across the wetlands while minimizing disturbance (if necessary).

Erosion Control Blankets must be installed a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

Soil material to be removed as part of the stream and wetland crossings shall be stockpiled within the right-of-way a minimum of 10' from said streams. Wetland soils (topsoil and subsoil) will be separated and stockpiled for restoration of the wetlands upon construction completion.

Stumps are to remain within the forested riparian buffers at all pipeline stream crossings to maintain the stability of these stream embankments. Removal of stumps will only occur within the trenchline at these crossings.

A Floodplain Analysis was completed to determine the floodplain boundary for each stream within the pipeline right-of-way. See Attachment M of the Joint Permit Application for the completed report.

Limit of disturbance is the permanent pipeline right-of-way (30') and the temporary right-of-way (width varies) unless otherwise noted.

RESOURCE	IMPACT TYPE	LENGTH (FT)	WIDTH (FT)	IMPACT AREA (SQ. FT.)	IMPACT AREA (ACRES)
CHANNEL 1 (HACKETT FORK)	TEMPORARY DIRECT	9	1	9	0.0002
	TEMPORARY INDIRECT	57	1	57	0.001
FLOODWAY*	TEMPORARY DIRECT	19	12.5	239	0.006
	TEMPORARY INDIRECT	52	31.1	1,617	0.037
CHANNEL 3 (OTT FORK)	PERMANENT INDIRECT	6	8	48	0.001
	TEMPORARY DIRECT	12	8	97	0.002
	TEMPORARY INDIRECT	22	8	173	0.004
FLOODWAY*	PERMANENT INDIRECT	12	41.2	494	0.011
	TEMPORARY DIRECT	15	19.7	296	0.007
	TEMPORARY INDIRECT	12.6	57	720	0.017
WETLAND 7	PERMANENT INDIRECT	15	53.9	808	0.019
	TEMPORARY DIRECT	12	34	412	0.010
	TEMPORARY INDIRECT	23	48.3	1,112	0.026

* Floodway Impacts exclude Stream Channel and Wetland Impacts.
** Pipeline trench used for permanent impacts.
Streams in red have drainage areas over 100 acres.

LEGEND

- EXISTING CONTOURS
- EXISTING ROAD
- EXISTING ACCESS ROAD
- PROPOSED PERMANENT R/W
- PROPOSED TEMPORARY R/W
- W — PROPOSED WATERLINE
- FLOODPLAIN (CALCULATED)
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- COMPOST FILTER SOCK
- X — X — ORANGE CONSTRUCTION FENCE
- SOIL BOUNDARY
- ABC SOIL TYPE
- EXISTING STREAM
- EXISTING WETLAND
- EROSION CONTROL BLANKET
- BARK CABIN NATURAL AREA

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

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
APR 05 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS

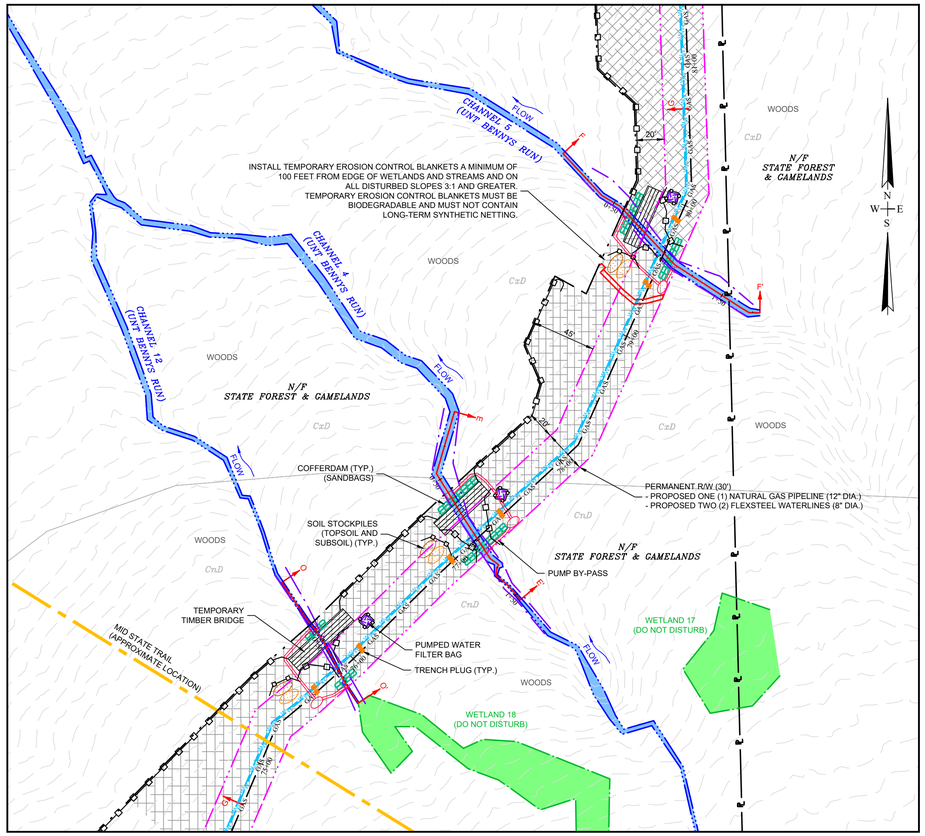
04/05/2024
Revised trout streams note to Class A wild streams, Added Bark Cabin Natural Area, changed pipeline and waterline alignments, flipped permanent and temporary right-of-ways between Stations 41+00 to 74+00

SHEET 2 OF 5

JOINT PERMIT APPLICATION
SITE PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023



DETAIL "D"

Scale: 1" = 50' (25 50 100 Feet)

CHANNELS 4 & 5 (UNT's BENNYS RUN)
THESE CROSSINGS QUALIFY AS WAIVED ACTIVITIES IN ACCORDANCE WITH PA CODE 25, CHAPTER 105.12(a)(2), HAVING AN UPSTREAM DRAINAGE AREA OF UNDER 100 ACRES.

NOTES:

All work for the proposed crossings as shown shall be completed under Joint Permit authorization.

All underground utility crossings will be completed by open-cut.

Cofferdams (Sandbags) shall be installed upstream and downstream of the proposed crossing and a by-pass pump shall be used to pump stream flow around the construction area.

A Pumped Water Filter Bag shall be placed a minimum of 10' from all streams and wetlands and shall be used to dewater the construction area as necessary. Compost Filter Socks shall be installed below the Pumped Water Filter Bag.

The proposed underground utility must be installed below the stream bed with a minimum of 3 feet of cover.

Wood mats or other low-impact movable devices may be used to track construction equipment across the wetlands while minimizing disturbance (if necessary).

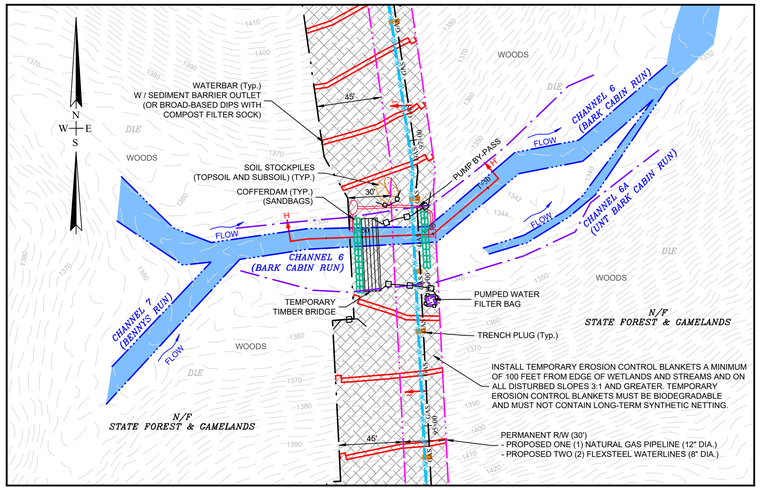
Erosion Control Blankets must be installed a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

Soil material to be removed as part of the stream and wetland crossings shall be stockpiled within the right-of-way a minimum of 10' from said streams. Wetland soils (topsoil and subsoil) will be separated and stockpiled for restoration of the wetlands upon construction completion.

Stumps are to remain within the forested riparian buffers at all pipeline stream crossings to maintain the stability of these stream embankments. Removal of stumps will only occur within the trenchline at these crossings.

A Floodplain Analysis was completed to determine the floodplain boundary for each stream within the pipeline right-of-way. See Attachment M of the Joint Permit Application for the completed report.

Limit of disturbance is the permanent pipeline right-of-way (30') and the temporary right-of-way (width varies) unless otherwise noted.

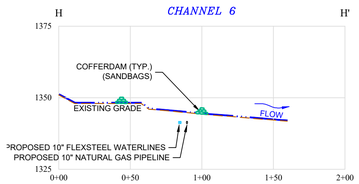


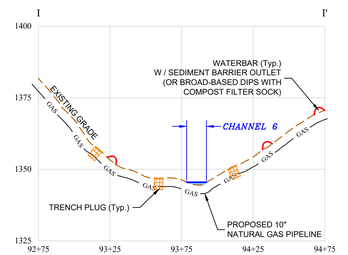
DETAIL "E"

Scale: 1" = 50' (25 50 100 Feet)

RESOURCE	IMPACT TYPE	LENGTH (FT)	WIDTH (FT)	IMPACT AREA (SQ. FT.)	IMPACT AREA (ACRES)
CHANNEL 4 (UNT BENNYS RUN)	PERMANENT INDIRECT	6	6	37	0.001
	TEMPORARY DIRECT	12	6	73	0.002
	TEMPORARY INDIRECT	32.5	6	195	0.004
FLOODWAY*	PERMANENT INDIRECT	15	1.2	18	0.0004
	TEMPORARY DIRECT	12	4.3	52	0.001
	TEMPORARY INDIRECT	23	2.2	50	0.001
CHANNEL 5 (UNT BENNYS RUN)	PERMANENT INDIRECT	6	6	36	0.001
	TEMPORARY DIRECT	13	4.6	60	0.001
	TEMPORARY INDIRECT	34.6	5	179	0.004
FLOODWAY*	PERMANENT INDIRECT	15	3.5	53	0.001
	TEMPORARY DIRECT	12	7.8	94	0.002
	TEMPORARY INDIRECT	23	5.1	117	0.003
CHANNEL 6 (BARK CABIN RUN)	PERMANENT INDIRECT	6	11.5	69	0.002
	TEMPORARY DIRECT	12	13	153	0.004
	TEMPORARY INDIRECT	43	12	511	0.012
FLOODWAY*	PERMANENT INDIRECT	15	42.5	637	0.015
	TEMPORARY DIRECT	12	36.6	439	0.010
	TEMPORARY INDIRECT	33	42.3	1,396	0.032
CHANNEL 12 (UNT BENNYS RUN)	PERMANENT INDIRECT	6	1.5	9	0.0002
	TEMPORARY DIRECT	12	2	24	0.001
	TEMPORARY INDIRECT	34.66	1.5	52	0.001
FLOODWAY*	PERMANENT INDIRECT	15	4.9	74	0.002
	TEMPORARY DIRECT	12	3.3	40	0.001
	TEMPORARY INDIRECT	23	4.4	101	0.002

* Floodway Impacts exclude Stream Channel and Wetland Impacts.
** Pipeline trench used for permanent impacts.
Streams in red have drainage areas over 100 acres.

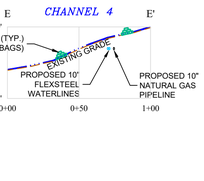


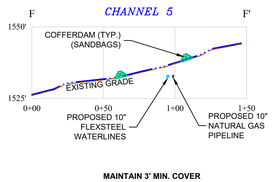


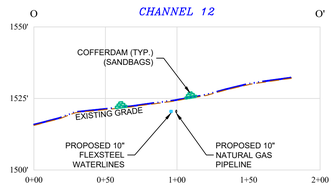
MAINTAIN 3' MIN. COVER BETWEEN PIPE AND STEAM BOTTOM

NOTE: BARK CABIN RUN AND ITS TRIBUTARIES ARE LISTED AS CLASS A WILD TROUT STREAMS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND APRIL 1 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.

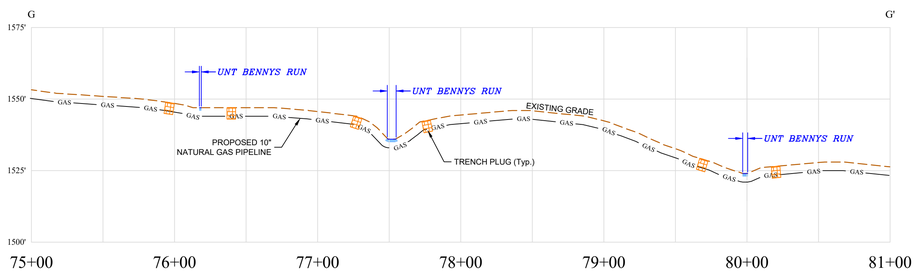
BENNYS RUN AND ITS TRIBUTARIES ARE LISTED AS NATIVE WILD TROUT STREAMS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND DECEMBER 31 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.







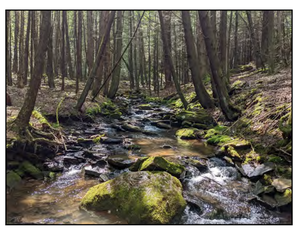
MAINTAIN 3' MIN. COVER BETWEEN PIPE AND STEAM BOTTOM (ALL CROSSINGS)



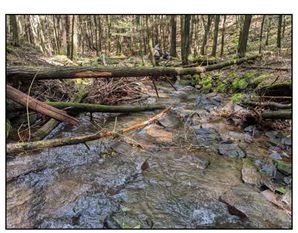
MAINTAIN MIN. 3' COVER BETWEEN PIPE AND STREAM BOTTOM (ALL STREAM CROSSINGS)

EQUIPMENT SERVICING OR FUELING SHALL NOT OCCUR WITHIN 50 FEET OF ANY STREAM OR WETLAND.

CHANNEL 4 - DOWNSTREAM



CHANNEL 6 - UPSTREAM



CHANNEL 6 - DOWNSTREAM

CHANNEL 5 - UPSTREAM

CHANNEL 12 - UPSTREAM

CHANNEL 5 - DOWNSTREAM

CHANNEL 12 - DOWNSTREAM

LEGEND

- EXISTING CONTOURS
- EXISTING ROAD
- EXISTING ACCESS ROAD
- PROPOSED PERMANENT R/W
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED WATERLINE
- FLOODPLAIN (CALCULATED)
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
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I Eric David Dougherty, P.E., P.L.S. do hereby certify pursuant to the penalties of 18 Pa. C.S.A., Section 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ERIC DAVID DOUGHERTY — ENGINEER — PE-057537 — APR 05 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

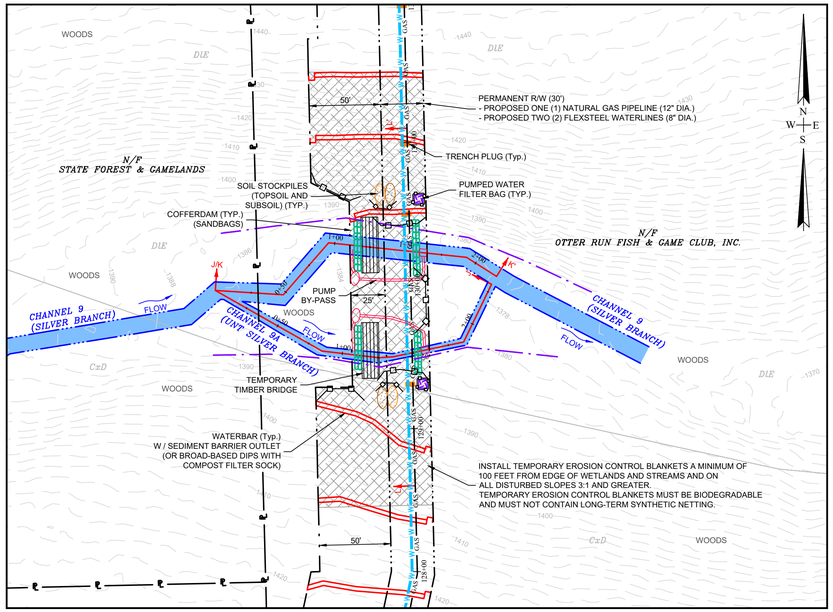
REVISIONS
04/05/2024 Revised trout streams note to Class A wild streams

SHEET 3 OF 5

JOINT PERMIT APPLICATION
SITE PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023



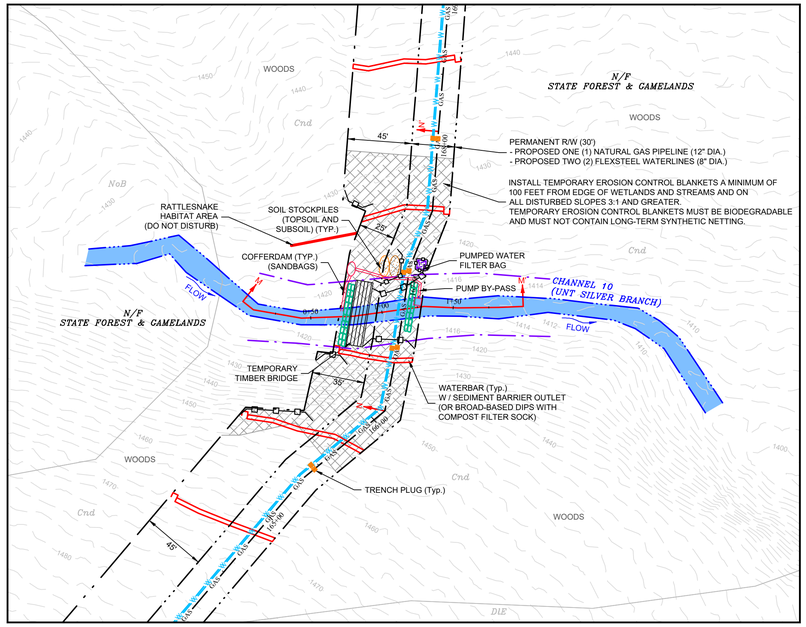
DETAIL "F"

Scale: 1" = 50' 25 50 100 Feet

RESOURCE	IMPACT TYPE	LENGTH (FT)	WIDTH (FT)	IMPACT AREA (SQ. FT.)	IMPACT AREA (ACRES)
CHANNEL 9 (SILVER BRANCH)	PERMANENT INDIRECT	6	13	79	0.002
	TEMPORARY DIRECT	12	13	158	0.004
	TEMPORARY INDIRECT	36	13	471	0.011
FLOODWAY*	PERMANENT INDIRECT	15	40	600	0.014
	TEMPORARY DIRECT	12	22.8	274	0.006
	TEMPORARY INDIRECT	27	50.7	1,368	0.031
CHANNEL 9A (UNT SILVER BRANCH)	PERMANENT INDIRECT	6	5	28	0.001
	TEMPORARY DIRECT	12	7	87	0.002
	TEMPORARY INDIRECT	37	5	198	0.005
FLOODWAY*	PERMANENT INDIRECT	15	35	527	0.012
	TEMPORARY DIRECT	12	22.8	273	0.006
	TEMPORARY INDIRECT	27	42.2	1,139	0.026
CHANNEL 10 (UNT SILVER BRANCH)	PERMANENT INDIRECT	6	14	84	0.002
	TEMPORARY DIRECT	12	12.5	152	0.004
	TEMPORARY INDIRECT	41	12	502	0.012
FLOODWAY*	PERMANENT INDIRECT	15	33.7	505	0.012
	TEMPORARY DIRECT	12	32.7	392	0.009
	TEMPORARY INDIRECT	28.5	36	1,029	0.024

* Floodway Impacts exclude Stream Channel and Wetland Impacts.
** Pipeline trench used for permanent impacts.
Streams in red have drainage areas over 100 acres.

NOTE: SILVER BRANCH AND ITS TRIBUTARIES ARE LISTED AS CLASS A WILD TROUT STREAMS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND APRIL 1 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.



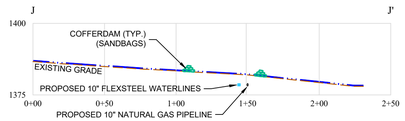
DETAIL "F"

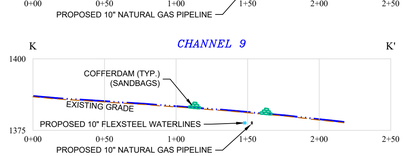
Scale: 1" = 50' 25 50 100 Feet

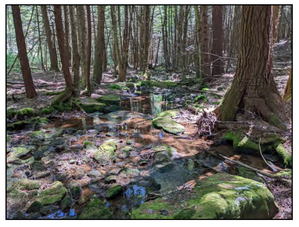
<u>CHANNEL 9A (UNT SILVER BRANCH)</u>
THIS CROSSING QUALIFIES AS A WAIVED ACTIVITY IN ACCORDANCE WITH PA CODE 25, CHAPTER 105.12(a)(2), HAVING AN UPSTREAM DRAINAGE AREA OF UNDER 100 ACRES.

MAINTAIN MIN. 3' COVER BETWEEN PIPE AND STREAM BOTTOM (ALL STREAM CROSSINGS)

EQUIPMENT SERVICING OR FUELING SHALL NOT OCCUR WITHIN 50 FEET OF ANY STREAM OR WETLAND.





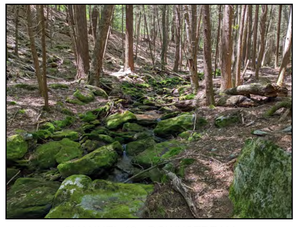


CHANNEL 9 - UPSTREAM

CHANNEL 9A - UPSTREAM

CHANNEL 10 - UPSTREAM

CHANNEL 9 - DOWNSTREAM



CHANNEL 10 - DOWNSTREAM

LEGEND

- EXISTING CONTOURS
- EXISTING ROAD
- EXISTING ACCESS ROAD
- PROPOSED PERMANENT R/W
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED WATERLINE
- FLOODPLAIN (CALCULATED)
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- COMPOST FILTER SOCK
- ORANGE CONSTRUCTION FENCE
- SOIL BOUNDARY
- SOIL TYPE
- EXISTING STREAM
- EXISTING WETLAND
- EROSION CONTROL BLANKET

NOTES:
All work for the proposed crossings as shown shall be completed under Joint Permit authorization.

All underground utility crossings will be completed by open-cut.

Cofferdams (Sandbags) shall be installed upstream and downstream of the proposed crossing and a by-pass pump shall be used to pump stream flow around the construction area.

A Pumped Water Filter Bag shall be placed a minimun of 10' from all streams and wetlands and shall be used to dewater the construction area as necessary. Compost Filter Socks shall be installed below the Pumped Water Filter Bag.

The proposed underground utility must be installed below the stream bed with a minimum of 3 feet of cover.

Wood mats or other low-impact movable devices may be used to track construction equipment across the wetlands while minimizing disturbance (if necessary).

Erosion Control Blankets must be installed a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

Soil material to be removed as part of the stream and wetland crossings shall be stockpiled within the right-of-way a minimum of 10' from said streams. Wetland soils (topsoil and subsoil) will be separated and stockpiled for restoration of the wetlands upon construction completion.

Stumps are to remain within the forested riparian buffers at all pipeline stream crossings to maintain the stability of these stream embankments. Removal of stumps will only occur within the trenchline at these crossings.

A Floodplain Analysis was completed to determine the floodplain boundary for each stream within the pipeline right-of-way. See Attachment M of the Joint Permit Application for the completed report.

Limit of disturbance is the permanent pipeline right-of-way (30') and the temporary right-of-way (width varies) unless otherwise noted.

CALL BEFORE YOU DIG!
PA LAW REQUIRES
3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
1-800-242-1776

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

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
APR 05 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS
04/05/2024 Revised trout streams note to Class A wild streams

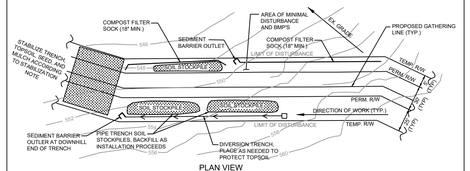
SHEET 4 OF 5

JOINT PERMIT APPLICATION
SITE PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

TYPICAL TRENCH E&S CONTROLS FOR AREAS OUTSIDE OF WETLANDS & STREAMS

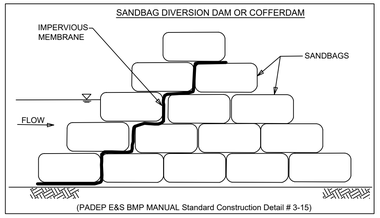


PLAN VIEW
N.T.S.

NOTES:

1. Compost Filter Socks (18" Min.) to be installed DOWN-GRADIENT of all exposed areas as work progresses, and continually kept down-gradient of all exposed trenches during construction operations. Upon backfilling of the trench, placement of topsoil, seeding, and mulching, the Filter Socks may be moved to the next appropriate location.
2. In areas where the pipeline crosses the slope contour at an angle, install the Compost Filter Socks parallel to the pipeline within the right-of-way and outlet the filter socks to Sediment Barriers. Spacing of Sediment Barriers shall be consistent with the spacing of temporary waterbars.
3. If the pipeline trench is to remain open for an extended period of time, or topsoil stockpiles are to be left for any amount of time, diversions trenches shall be constructed on the up-gradient side of the pipeline trench and/or stockpiles. Diversion trenches shall outlet to Sediment Barriers. As an alternative to diversion trenches, compost diversion socks may be used.
4. Any stockpile left for future use shall be immediately stabilized and shall have Compost Filter Socks placed down-gradient.
5. Breaks in soil stockpiles are to be installed as needed to prevent the impoundment of stormwater runoff.
6. When open-cut trenching across roadways, use 12" weighted Compost Filter Socks.

SANDBAG DIVERSION DAM OR COFFERDAM



(PADEP E&S BMP MANUAL Standard Construction Detail # 3-15)

Maintenance Program
Monitoring and visual inspections will focus on erosion and sediment control measures and will be conducted on a weekly basis and following run-off events, until 70% or greater uniform perennial vegetative cover has been established and/or permanent stabilization is achieved. Any deficiencies observed in erosion and sediment control measures will be corrected immediately. Sediments from BMPs shall be removed as specified in the maintenance for that BMP and spread on-site then stabilized according to the permanent stabilization specifications. If no suitable areas are available on-site, then the sediments shall be disposed of at a site(s) with an approved erosion and sediment control plan that meets the conditions of Chapter 102 and/or other State and Federal regulations.

Materials Disposal
All building materials and wastes must be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code Chapter 260, §§260.1 et seq., 271.1, and 287.1 et. seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site. The procedures which ensure that the proper measures for the recycling or disposal of materials associated with or from the project site will be undertaken in accordance with 25 Pa. Code, Chapter 78.

STABILIZATION (Non-riparian and Non-wetland areas) (For use on DCNR grounds)

Temporary stabilization will consist of seeding with Annual Rye Grass (40 lbs./acre), Oats (95 lbs./acre), or Wheat (168 lbs./acre). Mulching can also provide temporary stabilization.

Disturbed areas will be permanently seeded with the following seed mixtures dependent upon slope or suitable alternative.

BOF General Native/Non-Native Seed Mix

Areas with Less Than 15% Slope

3 tons/acre	Lime
500 lb/acre	Fertilizer (10-20-20)
2 lb/acre	Timothy (Phleum pretense)
6 lb/acre	Perennial ryegrass (Lolium perenne)
6 lb PLS/acre	Virginia wildrye (Elymus virginiana)
2 lb PLS acre	Little bluestem (Schizachyrium scoparius)
2 lb PLS/acre	Big bluestem (Andropogon gerardii)
6 lb/acre	White clover (Trifolium repens)
4 lb/acre	Partridge pea (Chamaecrista fasciculata)
0.5 lb/acre	Black-eyed susan (Rudbeckia hirta)

Areas with Greater Than 15 % Slope

3 tons/acre	Lime
500 lb/acre	Fertilizer (10-20-20)
6 lb/acre	Timothy (Phleum pretense)
4 lb/acre	Perennial ryegrass (Lolium perenne)
4 lb PLS/acre	Virginia wildrye (Elymus virginiana)
3 lb PLS/acre	Little bluestem (Schizachyrium scoparius)
3 lb PLS/acre	Sig bluestem (Andropogon gerardii)
3 lb PLS/acre	Indiangrass (Sorghastrum nutans)
6 lb/acre	White clover (Trifolium repens)
4 lb PLS/acre	Deertongue (Dicanthelium clandestinum)
2 lb/acre	Partridge pea (Chamaecrista fasciculata)
0.5 lb/acre	Black-eyed susan (Rudbeckia hirta)

Spring oats or grain rye at a rate of one bushel per acre

A nurse crop of Annual Rye Grass, Spring Oats, or Winter Rye as specified in the temporary stabilization above shall be planted with all permanent seeding mixtures.

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary seeding and mulch at 3 tons per acre.

A soil test is encouraged to determine the appropriate application of soil amendments. In lieu of a soil test, prior to seeding, lime and fertilizer will be applied. Fertilizer (10-20-20) will be applied at the rate of 500 pounds per acre. Lime will be applied at the rate of 3 tons per acre. After seeding, the entire disturbed area will be straw mulched at the rate of 3 tons per acre. Temporary erosion control blankets or other suitable alternatives will be used on slopes 3:1 and greater. Temporary erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

After seeding, the entire disturbed area will be mulched at the rate of 3 tons per acre. Where seeding will not be established prior to winter, additional mulch shall be applied.

Temporary erosion control blankets or other suitable alternatives will be used on slopes 3:1 and greater.

In the course of the earth movement activities and/or drilling operations, unanticipated conditions may require the revision of the plan. If changes are required, the preparer or company field representative will revise the plan and notify the PA Department of Environmental Protection of changes in a timely manner.

STABILIZATION (Non-Riparian and Non-wetland Areas) (For use on privately owned grounds)

Temporary stabilization will consist of seeding with Annual Rye Grass (40 lbs./acre), Spring Oats (96 lbs./acre - Spring and Summer planting), or Winter Rye (168 lbs./acre - Fall plantings). Mulching can also provide temporary stabilization.

Disturbed areas will be permanently seeded based on site conditions and seasonal considerations. Table 1 below provides a listing of recommended permanent seed mixtures for cool and warm seasons, while Table 2 provides recommended seed mixtures for stabilizing disturbed areas.

Table 1: Recommended Permanent Seed Mixtures Cool and Warm Season Grass

Mixture Number	Season	Species	Seeding Rate (lb./ac.)
1	Cool	Tall fescue, or	79
		Fine fescue, plus	46
		Redtop, or	4
		Perennial ryegrass, plus	19
		Birdsfoot trefoil	8
2	Cool	Birdsfoot trefoil, plus	8
		Tall fescue,	40
3	Cool	Orchardgrass, or	26
		Bromegrass, plus	33
		Birdsfoot trefoil	8
4	Warm	Flatpea, plus	27
		Tall fescue, or	26
		Perennial ryegrass,	25
5	Warm	Deertongue, plus	21
		Birdsfoot trefoil	8
6	Warm	Switchgrass, or	15
		Big Bluestem, plus	15
		Birdsfoot trefoil	8

Table 2: Recommended Seed Mixtures for Stabilizing Disturbed Areas

Site Conditions	Seed Mixture (Select One Mixture)
Cut Slopes and Fills (not mowed)	
Well-drained	2, 4, or 6
Variable drainage	2
Cut Slopes and Fills (mowed)	1
Cut Slopes and Fills (grazed/hay)	1, 2, or 3
Gullies and Eroded Areas	2 or 6
Erosion Control BMPs	
Channels, Drainage Ditches, Trap embankments, etc.	1 or 2
For hay or silage	2 or 3
Right-of-way	
Well-drained	4 or 6
Variable drainage	2
Well-drained areas for grazing/hay	2 or 3

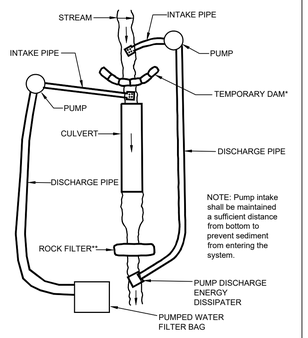
A nurse crop of Annual Rye Grass, Spring Oats, or Winter Rye as specified in the temporary stabilization above shall be planted with all permanent seeding mixtures.

Permanent seeding shall occur during the following time periods:
March 15 to June 1, or
August 1 to October 15
All other times should receive temporary seeding and mulch at 3 tons per acre.

Riparian Forested Buffer Monitoring Notes

1. All Riparian Buffer Tree Planting Areas shall be monitored annually for a minimum of 5 years following installation as specified on the Wetland And Riparian Buffer Planting Site Plan Phase IV Pipeline, with a report submitted to PA DEP annually.
2. Each monitoring event/report shall document the following:
   - Presence of any plant species categorized as noxious or invasive within Pennsylvania shall be identified and eradicated.
   - The survival rate of native tree/shrub installations should achieve 85% survival following year-1 or supplemental planting will be required.
   - Native tree/shrub installations shall achieve 60% uniform canopy cover by year-5 or supplemental planting will be required.

TEMPORARY COFFERDAM AND PUMP BYPASS AROUND IN-CHANNEL WORK AREAS



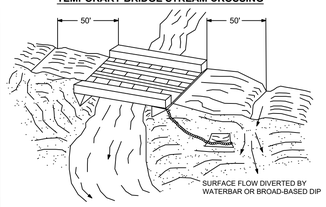
NOTE: Pump intake shall be maintained a sufficient distance from bottom to prevent sediment from entering the system.

* Sandbags, jersey barriers, or other non-erosive material, no earth fill. Do not excavate a sump for the pump intake.

** See Standard Construction Detail # 4-14 in the PADEP Erosion and Sediment Control Best Management Practices (BMP) Manual.

(PADEP E&S BMP MANUAL Figure 3.11)

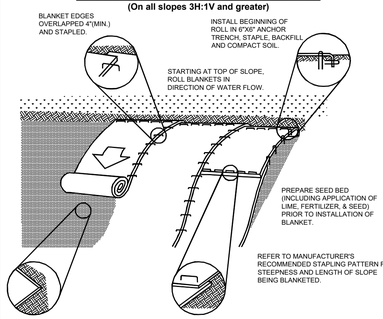
TEMPORARY BRIDGE STREAM CROSSING



Waterbars and broad-based dips shall discharge to sediment removal facilities.

(PADEP E&S BMP MANUAL Figure 3.4)

EROSION CONTROL BLANKET INSTALLATION
(On all slopes 3H:1V and greater)



Seed and soil amendments shall be applied according to the rates in the plan drawings prior to installing the blanket.

Provide anchor trench at toe of slope in similar fashion as at top of slope.

Slope surface shall be free of rocks, clods, sticks, and grass.

Blanket shall have good continuous contact with underlying soil throughout entire length. Lay blanket loosely and stake or staple to maintain direct contact with soil. Do not stretch blanket.

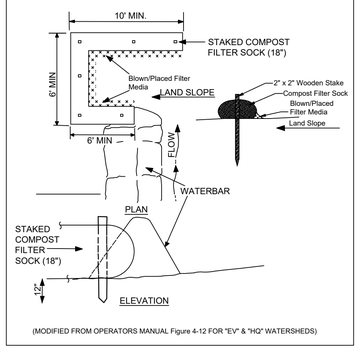
Stapling of the blanket shall be done in accordance with the manufacturer's recommendations.

Blanketed areas shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 70% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 5 calendar days.

Blankets must be installed on all disturbed slopes 3:1 and greater, must be biodegradeable and must not contain long-term synthetic netting.

(PADEP E&S BMP MANUAL Standard Construction Detail # 11-1)

SEDIMENT BARRIER PROTECTION AT WATERBAR OUTLET
(EV & HQ WATERSHEDS)



(MODIFIED FROM OPERATORS MANUAL Figure 4-12 FOR "EV" & "HQ" WATERSHEDS)

STABILIZATION (Forested Riparian Buffer Areas)

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary stabilization.

After seeding, the entire disturbed area shall be mulched at a rate of 3 tons per acre.

Supplemental planting will be utilized as needed. Substitutions native to USDA Hardiness Zones 5a and 6b are acceptable.

The following planting plan shall be used for all Riparian Buffer Areas:

Seed Mix for Riparian Area
(20 lbs/acre or ½ lb per 1,000 ft2 with a cover crop at 30 lbs per acre)

ERNMX-178: Riparian Buffer Mix or suitable alternative

31.2% Panicum clandestinum, Tioga (Deertongue, Tioga)
20.0% Elymus virginicus, PA Ecotype (Virginia Wildrye, PA Ecotype)
11.8% Andropogon gerardi, 'Niagara' (Big Bluestem, 'Niagara')
10.5% Sorghastrum nutans, 'Tomahawk' (Indiangrass, 'Tomahawk')
5.0% Panicum virgatum, 'Shelter' (Switchgrass, 'Shelter')
4.0% Chamaecrista fasciculata, PA Ecotype (Partridge Pea, PA Ecotype)
4.0% Verbena hastata, PA Ecotype (Blue Vervain, PA Ecotype)
3.0% Juncus effusus (Soft Rush)
3.0% Rudbeckia hirta, Coastal Plain NC Ecotype
(Blackeyed Susan, Coastal Plain NC Ecotype)
2.0% Heliopsis helianthoides, PA Ecotype (Oxeye Sunflower, PA Ecotype)
1.0% Asclepias incarnata, PA Ecotype (Swamp Milkweed, PA Ecotype)
0.9% Aster umbellatus, PA Ecotype (Flat Topped White Aster, PA Ecotype)
0.7% Aster lateriflorus (Calico Aster)
0.7% Eupatorium perfoliatum, PA Ecotype (Boneset, PA Ecotype)
0.5% Helenium autumnale, PA Ecotype (Common Sneezeweed, PA Ecotype)
0.5% Monarda fistulosa, Fort Indiantown Gap-PA Ecotype
(Wild Bergamot, Fort Indiantown Gap-PA Ecotype)
0.5% Vernonia noveboracensis, PA Ecotype (New York Ironweed, PA Ecotype)
0.4% Solidago patula, PA Ecotype (Roughleaf Goldenrod, PA Ecotype)
0.3% Lobelia siphilitica, PA Ecotype (Great Blue Lobelia, PA Ecotype)

Supplemental Native Woody Tree & Shrub Planting Stock
Density Rates for Forested Riparian Area

Planting Stock Type for Native Woody Plants	Plant Spacing O.C. (Feet)	Approximate Average Stems/Acre
Potted Plants (1 to 2 gallon)	14-16	400
Bare Root Seedlings	6-10	700

Supplemental Planting Species List for Forested Riparian Area
(Use at least 4 species from the below list)

Acer rubrum	Red Maple	Potted
Acer saccharinum	Silver Maple	Potted
Aronia melanocarpa	Black Chokeberry	Potted
Juglans nigra	Cottonwood	Potted
Liquidamber styraciflua	Sweet Gum	Potted
Pinus strobus	White Pine	Potted
Quercus rubra	Northern Red Oak	Potted
Quercus alba	White Oak	Potted
Vaccinium sp.	Blueberry	Potted
Viburnum lentago	Nannyberry	Potted

TRENCH PLUG INSTALLATION

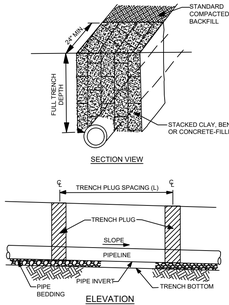


Table 13.1
Required Maximum Spacing and Materials for Trench Plugs

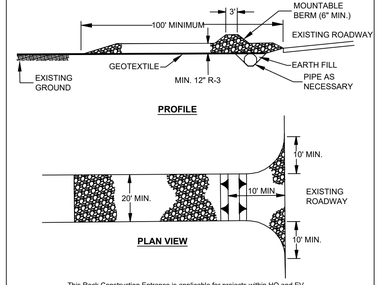
Trench Slope (%)	Spacing L (FT)	Plug Material
<5	1,000	*Clay, Bentonite, or Concrete Filled Sacks
5-15	500	*Clay, Bentonite, or Concrete Filled Sacks
15-25	300	*Clay, Bentonite, or Concrete Filled Sacks
25-35	200	*Clay, Bentonite, or Concrete Filled Sacks
35-100	100	*Clay, Bentonite, or Concrete Filled Sacks
>100	50	Cement Filled Bags (Wetted) or Mortared Stone

TOPSOIL MAY NOT BE USED TO FILL SACKS.

Impervious Trench Plugs are required for all stream, river, wetland, or other water body crossings regardless of Trench Slope.

(PADEP E&S BMP MANUAL Standard Construction Detail # 13-4)

ROCK CONSTRUCTION ENTRANCE - HQ & EV WATERSHEDS



This Rock Construction Entrance is applicable for projects within HQ and EV Watersheds. The Rock Construction Entrance is to be a minimum 100' in length and the rock sized increased to a R-3 (Min.).

Topsoil should be removed prior to installation of rock construction entrance.

Extend rock over full width of entrance and in all instances to a 20' Min. Width.

Runoff shall be diverted from roadway to a suitable sediment removal BMP prior to entering Rock Construction Entrance.

Mountable berm should be installed wherever optional culvert pipe is used. Pipe to be sized appropriately for size of ditch being crossed.

MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. All sediment deposited on paved roadways shall be removed and returned to the construction site immediately. If excessive amounts of sediment are being deposited on roadway, extend length of rock construction entrance by 50 foot increments until condition is alleviated or install wash rack. Washing the roadway or sweeping the deposits into roadway ditches, sewer systems, or other drainageways is not acceptable.

(PADEP E&S BMP MANUAL Standard Construction Detail # 3-1)

STABILIZATION (WETLAND AREAS)

All wetland areas shall be immediately stabilized by permanent seeding, if possible, following disturbance. Temporary stabilization shall consist of straw mulch at a rate of 3 tons per acre if outside the recommended permanent seeding dates.

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary stabilization.

After seeding, the entire disturbed area shall be mulched at a rate of 3 tons per acre.

Supplemental planting will be utilized as needed. Substitutions native to USDA Hardiness Zones 5a and 6b are acceptable.

The following planting plan shall be used for all Wetland Areas:

Seed Mix for Wetland Area (20 lbs/acre or ½ lb per 1,000 ft2)

ERNMX-120: OBL-FACW Perennial Food & Cover Wetland Mix or suitable alternative

20.0% Carex vulpinoidea, PA Ecotype (Fox Sedge, PA Ecotype)
20.0% Elymus virginicus, Madison-NY Ecotype
(Virginia Wildrye, Madison-NY Ecotype)
15.0% Panicum clandestinum, Tioga (Deertongue, Tioga)
12.5% Carex lupulina, PA Ecotype (Hop Sedge, PA Ecotype)
12.5% Carex lurida, PA Ecotype (Lurid Sedge, PA Ecotype)
11.5% Carex scoparia, PA Ecotype (Blunt Broom Sedge, PA Ecotype)
3.0% Juncus effusus (Soft Rush)
2.0% Carex stipata, PA Ecotype (Awl Sedge, PA Ecotype)
2.0% Leersia oryzoides, PA Ecotype (Rice Cutgrass, PA Ecotype)
1.0% Carex crinita, PA Ecotype (Fringed Sedge, PA Ecotype)
0.5% Scirpus cyperinus, PA Ecotype (Woolgrass, PA Ecotype)

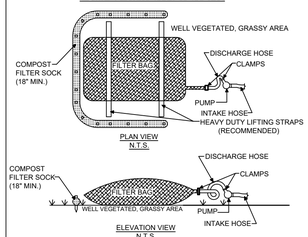
Supplemental Native Woody Trees & Shrub Planting Stock
Density Rates for Wetland Area

Planting Stock Type for Native Woody Plants	Plant Spacing (O.C. (Feet)	Approximate Average Stems/Acre
Potted Plants (1 to 2 gallons)	14-16	400
Bare Root Seedlings	6-10	700
Live Stakes	6-10	700

Supplemental Planting Species List for Wetland Area
(Use at least 6 species from the below list)

Acer rubrum	Red Maple	Potted
Acer saccharinum	Silver Maple	Potted
Ilex verticillata	Winterberry Holly	Potted
Lindera benzoin	Spicebush	Potted
Physocarpus opulifolius	Ninebark	Potted
Platanus occidentalis	American Sycamore	Potted
Quercus bicolor	Swamp White Oak	Potted
Quercus palustis	Pin Oak	Potted
Rosa palustris	Swamp Rose	Potted
Sambucus canadensis	Elderberry	Potted
Viburnum lentago	Nannyberry	Potted
Alnus sp.	Alder	Live Stakes
Cephalanthus occidentalis	Buttonbush	Live Stakes
Cornus amomum	Silky Dogwood	Live Stakes
Salix sp.	Willow	Live Stakes
Carpinus caroliniana	American Hornbeam	Live Stakes
Betula alleghaniensis	Yellow Birch	Live Stakes

PUMPED WATER FILTER BAG



Low Volume Filter bags shall be made from non-woven geotextile material sewn with high strenght, double stiched "J" type seams. They shall be capable of trapping particles larger than 150 microns. High Volume Filter Bags may be made from woven geotextiles that meet the following standards:

Property	Test Method	Minimum Standard
Avg. Wide Width Strenght	ASTM D-4884	60 lb/in
Grab Tensile	ASTM D-4632	205 lb
Puncture	ASTM D-4833	110 lb
Mullen Burst	ASTM D-3786	350 lb
UV Resistance	ASTM D-4355	70%
AOS (% Retained)	ASTM D-4751	80 Sieve

A suitable means of accessing the bag with machinery required for disposal purposes must be provided. Filter bags shall be replaced when they become 1/2 full. Spare bags shall be kept available for replacement of those that have failed or are full. It is recommended that bags be placed on straps to facilitate removal.

Bags shall be located in well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile underlayment and flow path shall be provided. Bags may be placed on filter stone to increase discharge capacity. Bags shall not be placed on slopes greater than 5%. For slopes exceeding 5%, clean rock or other non-erodible and non-polluting material may be placed under the bag to reduce slope steepness.

No downslope sediment barrier is required for most installations. Compost berm or compost filter sock should be installed below bags located within 50 feet of receiving stream or where grassy area is not available. A compost berm or compost filter sock shall be placed below any bag discharging to a special protection surface water.

The pump discharge hose shall be inserted into the bags in the manner specified by the manufacturer and securely clamped. A piece of PVC pipe is recommended for this purpose.

The pumping rate shall be no greater than 750 gpm or 1/2 the maximum specified by the manufacturer, whichever is less. Pump intakes should be floating and screened.

Filter bags shall be inspected daily. If any problem is detected, pumping shall cease immediately and not resume until the problem is corrected.

(PADEP E&S BMP MANUAL Standard Construction Detail # 3-16)

Waterbar Installation on a Utility Line Right-of-Way

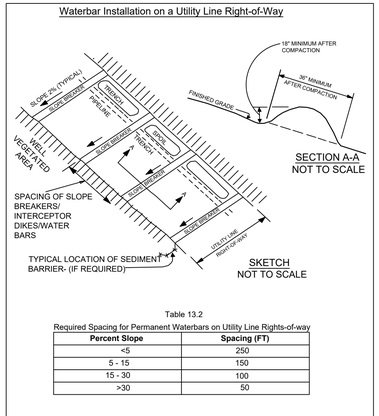
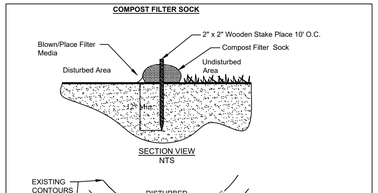


Table 13.2
Required Spacing for Permanent Waterbars on Utility Line Rights-of-way

Percent Slope	Spacing (FT)
<5	250
5 - 15	150
15 - 30	100
>30	50

(PADEP E&S BMP MANUAL Figure 13.1)

COMPOST FILTER SOCK



Compost Filter Sock Shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment. Maximum slope length above any sock shall not exceed that shown on Figure 4.2 in the PADEP Erosion and Sediment Control Best Management Practice (BMP) Manual.

Traffic shall not be permitted to cross filter socks.

Accumulated Sediment shall be removed when it reaches 1/2 the above ground height of the sock and disposed in the manner described elsewhere in the plan.

Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to the manufacturer's specifications or replaced within 24 hours of inspection.

Biodegradable filter sock shall be replaced after 6 months; photodegradable socks after 1 year. Polypropylene socks shall be replaced according to manufacturer's recommendations.

Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.

(PADEP E&S BMP MANUAL Standard Construction Detail # 4-1)

Compost shall meet the following standards:

Organic Matter Content -- 80% - 100% (dry weight basis)
Organic Portion -- Fibrous and elongated
pH -- 5.5 - 8.0
Moisture Content -- 35% - 55%
Particle Size -- 98% pass through 1" screen
Soluble Salt Concentration -- < 5.0 dS Maximum

Broad-Based Dip with Compost Filter Socks Installation on a Utility Line Right-of-Way

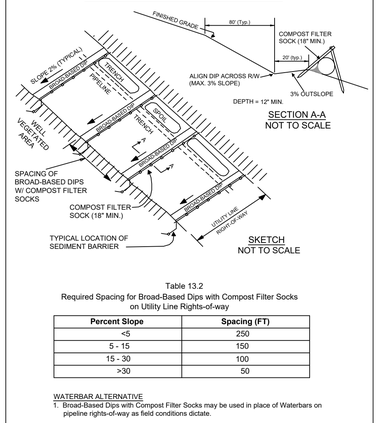


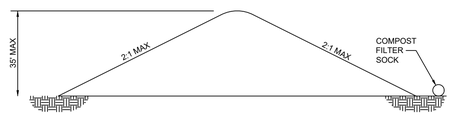
Table 13.2
Required Spacing for Broad-Based Dips with Compost Filter Socks on Utility Line Rights-of-way

Percent Slope	Spacing (FT)
<5	250
5 - 15	150
15 - 30	100
>30	50

WATERBAR ALTERNATIVE

1. Broad-Based Dips with Compost Filter Socks may be used in place of Waterbars on pipeline rights-of-way as field conditions dictate.
2. Compost Filter Socks and Sediment Barrier Outlets shall remain in place until final stabilization (70% minimum vegetative coverage) has been achieved; at which point these sediment control BMPs may be removed.

TEMPORARY TOPSOIL STOCKPILE
N.T.S.



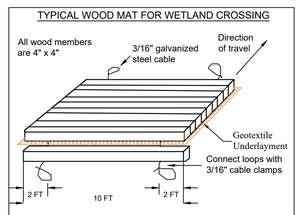
MAINTENANCE

1. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter.
2. Compost Filter Socks shall be installed at the downslope side of the topsoil stockpile.
3. Topsoil stockpiles shall be temporarily stabilized with seed and mulch.
4. Topsoil stockpile locations shall be provided where indicated on the plan.

NOTE

The contractor may designate topsoil stockpile locations within the right-of-way providing Compost Filter Socks on downslope side of location.

TYPICAL WOOD MAT FOR WETLAND CROSSING



A geotextile underlayment shall be used under the wood mat.

(PADEP E&S BMP MANUAL Figure 3.7)

CALL BEFORE YOU DIG!
PA LAW REQUIRES
3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
1-800-242-1776

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

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ERIC DAVID DOUGHERTY — ENGINEER — PE-057537

APR 05 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS
Revised 04/05/24 Added Riparian Forested Buffer Monitoring Note

SHEET 5 OF 5

JOINT PERMIT APPLICATION
SITE PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

ATTACHMENT I:
LOCATION MAP

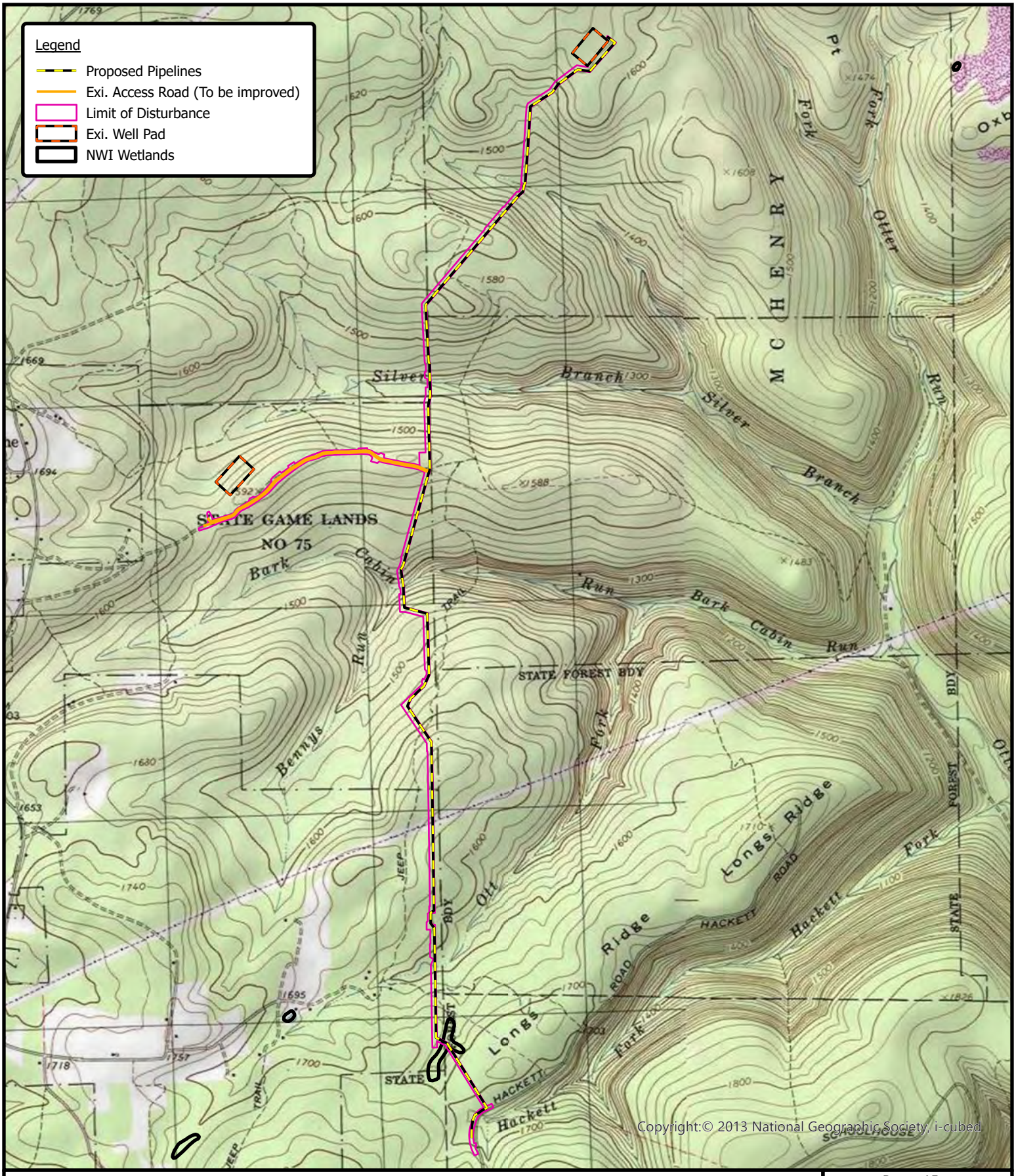


Figure 1: Location and NWI Map for the Phase IV Pipeline

Cummings and McHenry Townships, Lycoming County, PA

N

Central Coordinates:
41.4303°N 77.3849°W

0 2,000 4,000Feet

USGS Quadrangle
Cammal

Prepared For:
EQT

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

ATTACHMENT J:

PROJECT DESCRIPTION NARRATIVE

CHAPTER 105 CUMULATIVE IMPACTS TABLE

AQUATIC RESOURCE IMPACT TABLE

Attachment J
Project Description Narrative
Pennsylvania General Energy Co., LLC
Phase IV Pipeline

This project will consist of the construction of 19,894 linear feet of 12" natural gas pipeline and 19,855 linear feet of two (2) 8" flexsteel waterlines within a 30' wide permanent right-of-way and temporary right-of-way that varies in width. Nine (9) streams and one (1) wetland will be crossed by the pipelines requiring a joint permit. All stream and wetland crossings will be open cut. An existing access road will also be improved as part of the project. The total disturbance area, which includes the proposed pipeline right-of-way area and workspace for the access road is 42.17 acres.

Land cover within the proposed pipeline right-of-way is currently forest. Historic land use was primarily forest.

The purpose of the project is to provide a natural gas outlet for the SGL 075 lease and adjacent private leases. Secondarily, the project purpose is to supply freshwater for oil and gas development on SGL 075 and adjacent private leases.

A resource identification and wetland delineation report was completed for this project entitled "Resource Identification and Wetland Delineation Report for the Phase IV Pipeline." This report identified seventeen (17) wetlands and fifteen (15) watercourses within the investigation area. Five (5) watercourses Channel 3 (Ott Fork), Channel 6 (Bark Cabin Run), Channel 9 (Silver Branch), Channel 9A (UNT Silver Branch) and Channel 10 (UNT Silver Branch) have drainage areas over 100 acres and one (1) wetland will be crossed by the proposed pipelines, requiring a Joint Permit. Four (4) additional watercourses that will be impacted are covered under a Chapter 105.12(a)(2) waiver. All proposed crossings will be open cut. Impacts to the remaining sixteen (16) wetlands are avoided by routing.

The following table summarizes the proposed resource crossings within Lycoming County:

Summary Table of Proposed Impacts

Project Specific Unique Resource Identifier	Aquatic Resource Type	Permanent Direct Impacts (acres)	Temporary Direct Impacts (acres)	Permanent Indirect Impacts (acres)	Temporary Indirect Impacts (acres)
Channel 1	Watercourse	0	0.0002	0	0.001
Channel 1	Floodway	0	0.006	0	0.037
Channel 3	Watercourse	0	0.002	0.001	0.004
Channel 3	Floodway	0	0.007	0.011	0.017
Wetland 7		0	0.010	0.019	0.025
Channel 4	Watercourse	0	0.002	0.001	0.004
Channel 4	Floodway	0	0.001	0.0004	0.001
Channel 5	Watercourse	0	0.001	0.001	0.004
Channel 5	Floodway	0	0.002	0.001	0.003
Channel 6	Watercourse	0	0.004	0.002	0.012

Channel 6	Floodway	0	0.010	0.015	0.032
Channel 9	Watercourse	0	0.004	0.002	0.011
Channel 9	Floodway	0	0.006	0.014	0.031
Channel 9A	Watercourse	0	0.002	0.001	0.005
Channel 9A	Floodway	0	0.006	0.012	0.026
Channel 10	Watercourse	0	0.004	0.002	0.012
Channel 10	Floodway	0	0.009	0.012	0.024
Channel 12	Watercourse	0	0.001	0.0002	0.001
Channel 12	Floodway	0	0.001	0.002	0.002

The proposed activity is to open cut the stream and wetland areas using the most current best management practices. The natural gas pipeline and waterline trench will each be a maximum of six (6) feet wide. Best management practices will be implemented to minimize disturbance to the stream and wetland areas including the use of waterbars with sediment barrier outlets and trench plugs up-slope and downslope of the crossings.

Wood mats or other low-impact movable devices shall be used to track construction equipment across the wetlands to minimize disturbance.

Clearing and grubbing of the right-of-way at the crossings will be limited to what is necessary to accomplish the project within the proposed permanent easements, maintaining as much canopy cover as possible. Stumps are to remain within the forested riparian buffers at all pipeline stream crossings to maintain the stability of these stream embankments. Removal of stumps will only occur within the trenchline at these crossings.

There are no anticipated impacts to public health, safety and the environment as the equipment crossings will be temporary and the proposed open cut trenches across the wetlands will be restored following pipeline placement using standard best management practices. Also, an approved erosion and sedimentation control plan will be implemented during construction activities and remain in place until permanent stabilization has been achieved. No species impacts were identified through the PNDI search.

The proposed route necessitating the impacts to the above resources was chosen as the shortest route between the Phase III Pipeline and the SGL 75 Pad F. The route chosen avoids disturbance of most existing emergent wetlands and perennial streams and minimizes disturbance to other existing wetlands while also minimizing disturbance to existing forested riparian buffers.

Phase IV Pipeline

Unique Identifier	Aquatic Resource Type	Latitude (dd nad83)	Longitude (dd nad83)	Chapter 93 Designation		Drainage Area Over 100 Ac (Y - Yes or N - No)	Stream Type (P-Perennial, I-Intermittent or E - Ephemeral)	Impact Type P - Permanent T - Temporary	Stream Impacts			Floodway Impacts		Wetland Impacts					Wetland Area (PFO, PSS) to be Replanted	
				Designated	Existing				Length (ft.) x Width (ft.)	Area (sq. ft.)	Acres	Area (sq. ft.)	Acres	PEM (sq. ft.)	PSS (sq. ft.)	PFO (sq. ft.)	Total (sq. ft.)	Acres	Sq. Ft.	Acres
Wetland 7	PFO	41.415978	-77.389448					P								808	808	0.019		
Wetland 7	PFO	41.415957	-77.389486					T								1,524	1,524	0.035	1,524	0.035
Channel 1		41.4072	-77.386915	CWF	EV	N	E	T	9 x 1	66	0.002	1,856	0.043							
Channel 3		41.414114	-77.389216	CWF	HQ-CWF	Y	P	P	6 x 8	48	0.001	494	0.011							
Channel 3		41.414116	-77.389197	CWF	HQ-CWF	Y	P	T	34 x 8	270	0.006	1,016	0.023							
Channel 4		41.425849	-77.390034	CWF	HQ-CWF	N	P	P	6 x 6	37	0.001	18	0.0004							
Channel 4		41.425882	-77.390062	CWF	HQ-CWF	N	P	T	44.75 x 6	268	0.006	102	0.002							
Channel 5		41.426394	-77.389557	CWF	HQ-CWF	N	P	P	6 x 6	36	0.001	53	0.001							
Channel 5		41.42642	-77.389589	CWF	HQ-CWF	N	P	T	47.6 x 5	239	0.005	211	0.005							
Channel 6		41.430196	-77.390936	CWF	HQ-CWF	Y	P	P	6 x 11.5	69	0.002	637	0.015							
Channel 6		41.430196	-77.390919	CWF	HQ-CWF	Y	P	T	54.5 x 12	664	0.015	1,835	0.042							
Channel 9		41.439294	-77.389351	CWF	HQ-CWF	Y	P	P	6 x 18	79	0.002	600	0.014							
Channel 9		41.439292	-77.389331	CWF	HQ-CWF	Y	P	T	48 x 13	629	0.014	1,642	0.038							
Channel 9A		41.439099	-77.389347	CWF	HQ-CWF	Y	E	P	6 x 4.75	28	0.001	527	0.012							
Channel 9A		41.439102	-77.389328	CWF	HQ-CWF	Y	E	T	48.8 x 5.8	285	0.007	1,412	0.032							
Channel 10		41.447727	-77.383877	CWF	HQ-CWF	Y	P	P	6 x 19	84	0.002	505	0.012							
Channel 10		41.44773	-77.383844	CWF	HQ-CWF	Y	P	T	52 x 12.6	654	0.015	1,421	0.033							
Channel 12		41.425595	-77.390386	CWF	HQ-CWF	N	I	P	6 x 1.5	9	0.0002	74	0.002							
Channel 12		41.425625	-77.390407	CWF	HQ-CWF	N	I	T	45 x 1.7	76	0.002	141	0.003							

Total Non-Waived Permanent Stream Impacts	308 sq. ft.	0.007 Ac	2,763 sq. ft.	0.063 Ac	0 sq. ft.	0 sq. ft.	2,332 sq. ft.			**Totals**	
Total Non-Waived Temporary Stream Impacts	2,502 sq. ft.	0.057 Ac	7,326 sq. ft.	0.168 Ac	0.000 Ac	0.000 Ac	0.054 Ac			1,524 sq.ft	0.035 Ac
Total Waived Permanent Stream Impacts	82 sq. ft.	0.002 Ac	145 sq. ft.	0.003 Ac	Total Permanent Wetland Impacts			808 sq. ft.	0.019 Ac		
Total Waived Temporary Stream Impacts	649 sq. ft.	0.015 Ac	2,310 sq. ft.	0.053 Ac	Total Temporary Wetland Impacts			1,524 sq. ft.	0.035 Ac		
Total Stream Impacts	3,541 sq. ft.	0.081 Ac	12,544 sq. ft.	0.288 Ac	Total Wetland Impacts			2,332 sq. ft.	0.054 Ac		

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

Applicant's Name / Client PGE

AQUATIC RESOURCE IMPACT TABLE

FOR PENNSYLVANIA CHAPTER 105 WATER OBSTRUCTION AND ENCROACHMENT APPLICATION / REGISTRATION

Project / Site Name: Phase IV Pipeline Date: 08/09/2023

DEP USE ONLY	Project Information						PA DEP / 105						Enter Only If Different from DEP Impacts Army Corps Impacts:	
PADEP Permit Number	Structure / Activity unique identifier	Aquatic Resource Type	Latitude dd nad83	Longitude dd nad83	Waters Name	PA Code Chapter 93 Designation	Work Proposed	DEP Impact Type temp / perm	ACOE Impact Type temp / perm	Watercourse Impact *Top of Bank to Top of Bank* Length and Width in feet	Floodway Impact *Top of Bank Landward* Length and Width in feet	Wetland Impact Dimensions Length and Width in feet	Watercourse Impact Length and Width in feet	Wetland Impact Length and Width in feet
	Timber Mats	Ephemeral	41.407196	-77.386941	Channel 1	CWF	Fill/Excav.	Perm	Temp	1 - 9	19 – 12.5	-	-	-
	Workspace	Ephemeral	41.407201	-77.386989	Channel 1	CWF	Fill/Excav.	Temp	Temp	45 – 1.5	46 – 40.3	-	-	-
	Gas Pipeline	Perennial	41.414114	-77.389216	Channel 3	CWF	Fill/Excav.	Perm	Temp	3 - 8	7.5 - 33	-	-	-
	Waterlines	Perennial	41.414112	-77.389234	Channel 3	CWF	Fill/Excav.	Perm	Temp	3 - 8	7.5 - 33	-	-	-
	Timber Bridge	Perennial	41.414108	-77.389275	Channel 3	CWF	Aerial	Temp	Temp	12 - 8	12 – 24.7	-	-	-
	Workspace	Perennial	41.414116	-77.389197	Channel 3	CWF	Fill/Excav.	Temp	Temp	34 - 8	12.6 - 57	-	-	-
	Gas Pipeline	PFO	41.415978	-77.389448	Wetland 7		Fill/Excav.	Perm	Temp	-	-	7.5 - 54	-	-
	Waterlines	PFO	41.415957	-77.389466	Wetland 7		Fill/Excav.	Perm	Temp	-	-	7.5 - 54	-	-
	Timber Mats	PFO	41.415944	-77.389548	Wetland 7		Fill/Excav.	Temp	Temp	-	-	12 - 34	-	-
	Workspace	PFO	41.415957	-77.389486	Wetland 7		Fill/Excav.	Temp	Temp	-	-	23 – 46.8	-	-
	Gas Pipeline	Perennial	41.426390	-77.389551	Channel 4	CWF	Fill/Excav.	Perm	Temp	3 - 6	7.5 – 1.33	-	-	-
	Waterlines	Perennial	41.426398	-77.389561	Channel 4	CWF	Fill/Excav.	Perm	Temp	3 - 6	7.5 – 0.93	-	-	-
	Timber Bridge	Perennial	41.426445	-77.389619	Channel 4	CWF	Aerial	Temp	Temp	12 - 6	12 – 4.33	-	-	-
	Workspace	Perennial	41.426420	-77.389589	Channel 4	CWF	Fill/Excav.	Temp	Temp	32.5 - 6	23 – 2.2	-	-	-
	Gas Pipeline	Perennial	41.425844	-77.390030	Channel 5	CWF	Fill/Excav.	Perm	Temp	3 - 6	7.5 – 2.9	-	-	-
	Waterlines	Perennial	41.425852	-77.390037	Channel 5	CWF	Fill/Excav.	Perm	Temp	3 - 6	7.5 – 4.1	-	-	-
	Timber Bridge	Perennial	41.425908	-77.390084	Channel 5	CWF	Aerial	Temp	Temp	13 – 4.6	12 – 7.6	-	-	-
	Workspace	Perennial	41.425882	-77.390062	Channel 5	CWF	Fill/Excav.	Temp	Temp	34.6 - 5	23 – 5.2	-	-	-
	Gas Pipeline	Perennial	41.430196	-77.390936	Channel 6	CWF	Fill/Excav.	Perm	Temp	3 – 11.5	7.5 – 42.5	-	-	-
	Waterlines	Perennial	41.430196	-77.390954	Channel 6	CWF	Fill/Excav.	Perm	Temp	3 – 11.5	7.5 – 42.5	-	-	-
	Timber Bridge	Perennial	41.430193	-77.391064	Channel 6	CWF	Aerial	Temp	Temp	12 - 11	12 – 36.6	-	-	-
	Workspace	Perennial	41.430196	-77.390919	Channel 6	CWF	Fill/Excav.	Temp	Temp	54 - 12	33 – 42.3	-	-	-

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERWAYS ENGINEERING AND WETLANDS

Project / Site Name: Phase IV Pipeline Date: 08/09/2023

DEP USE ONLY	Project Information						PA DEP / 105						Enter Only If Different from DEP Impacts Army Corps Impacts:	
PADEP Permit Number	Structure / Activity unique identifier	Aquatic Resource Type	Latitude dd nad83	Longitude dd nad83	Waters Name	PA Code Chapter 93 Designation	Work Proposed	DEP Impact Type temp / perm	ACOE Impact Type temp / perm	Watercourse Impact *Top of Bank to Top of Bank* Length and Width in feet	Floodway Impact *Top of Bank Landward* Length and Width in feet	Wetland Impact Dimensions Length and Width in feet	Watercourse Impact Length and Width in feet	Wetland Impact Length and Width in feet
	Gas Pipeline	Perennial	41.439294	-77.389351	Channel 9	CWF	Fill/Excav.	Perm	Temp	3 - 13	7.5 - 40	-	-	-
	Waterlines	Perennial	41.439295	-77.389369	Channel 9	CWF	Fill/Excav.	Perm	Temp	3 - 13	7.5 - 40	-	-	-
	Timber Bridge	Perennial	41.439303	-77.389461	Channel 9	CWF	Aerial	Temp	Temp	12 - 13	12 – 22.8	-	-	-
	Workspace	Perennial	41.439292	-77.389331	Channel 9	CWF	Fill/Excav.	Temp	Temp	48 - 13	27 – 50.7	-	-	-
	Gas Pipeline	Ephemeral	41.439099	-77.389347	Channel 9A	CWF	Fill/Excav.	Perm	Temp	3 - 5	7.5 - 35	-	-	-
	Waterlines	Ephemeral	41.439096	-77.389365	Channel 9A	CWF	Fill/Excav.	Perm	Temp	3 - 5	7.5 - 35	-	-	-
	Timber Bridge	Ephemeral	41.439092	-77.389453	Channel 9A	CWF	Aerial	Temp	Temp	12 - 7	12 – 22.8	-	-	-
	Workspace	Ephemeral	41.439102	-77.389328	Channel 9A	CWF	Fill/Excav.	Temp	Temp	49 - 5	27 – 42.2	-	-	-
	Gas Pipeline	Perennial	41.447727	-77.383877	Channel 10	CWF	Fill/Excav.	Perm	Temp	3 - 14	7.5 – 33.7	-	-	-
	Waterlines	Perennial	41.447725	-77.383896	Channel 10	CWF	Fill/Excav.	Perm	Temp	3 - 14	7.5 – 33.7	-	-	-
	Timber Bridge	Perennial	41.447716	-77.383987	Channel 10	CWF	Aerial	Temp	Temp	12 – 12.5	12 – 32.7	-	-	-
	Workspace	Perennial	41.447730	-77.383844	Channel 10	CWF	Fill/Excav.	Temp	Temp	52 - 12	28.5 - 36	-	-	-
	Gas Pipeline	Intermittent	41.425590	-77.390382	Channel 12	CWF	Fill/Excav.	Perm	Temp	2.66 – 1.5	7.5 – 5.1	-	-	-
	Waterlines	Intermittent	41.425599	-77.390388	Channel 12	CWF	Fill/Excav.	Perm	Temp	3.33 – 1.5	7.5 – 4.8	-	-	-
	Timber Bridge	Intermittent	41.425661	-77.390434	Channel 12	CWF	Fill/Excav.	Temp	Temp	12 - 2	12 – 3.33	-	-	-
	Workspace	Intermittent	41.425625	-77.390407	Channel 12	CWF	Aerial	Temp	Temp	34.66 – 1.5	23 – 4.4	-	-	-

PADEP Impact Type: temporary or permanent.

Permanent Impacts are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water.

Temporary Impacts are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water (these are considered permanent impacts).

ATTACHMENT K:
COLOR PHOTOGRAPHS WITH LOCATION MAP

PP 1 – Channel 3 Upstream

PP 1 – Channel 3 Downstream

PP 2 – Wetland 7

PP 3 – Channel 12 Upstream

PP 3 – Channel 12 Downstream

PP 4 – Channel 4 Downstream

PP 5 – Channel 5 Downstream

PP 5 – Channel 5 Upstream

PP 6 – Channel 6 Upstream

PP 6 – Channel 6 Downstream

PP 7 – Channel 9A Upstream

PP 9 – Channel 10 Upstream

PP 8 – Channel 9 Upstream

PP 9 – Channel 10 Downstream

PP 8 – Channel 9 Downstream

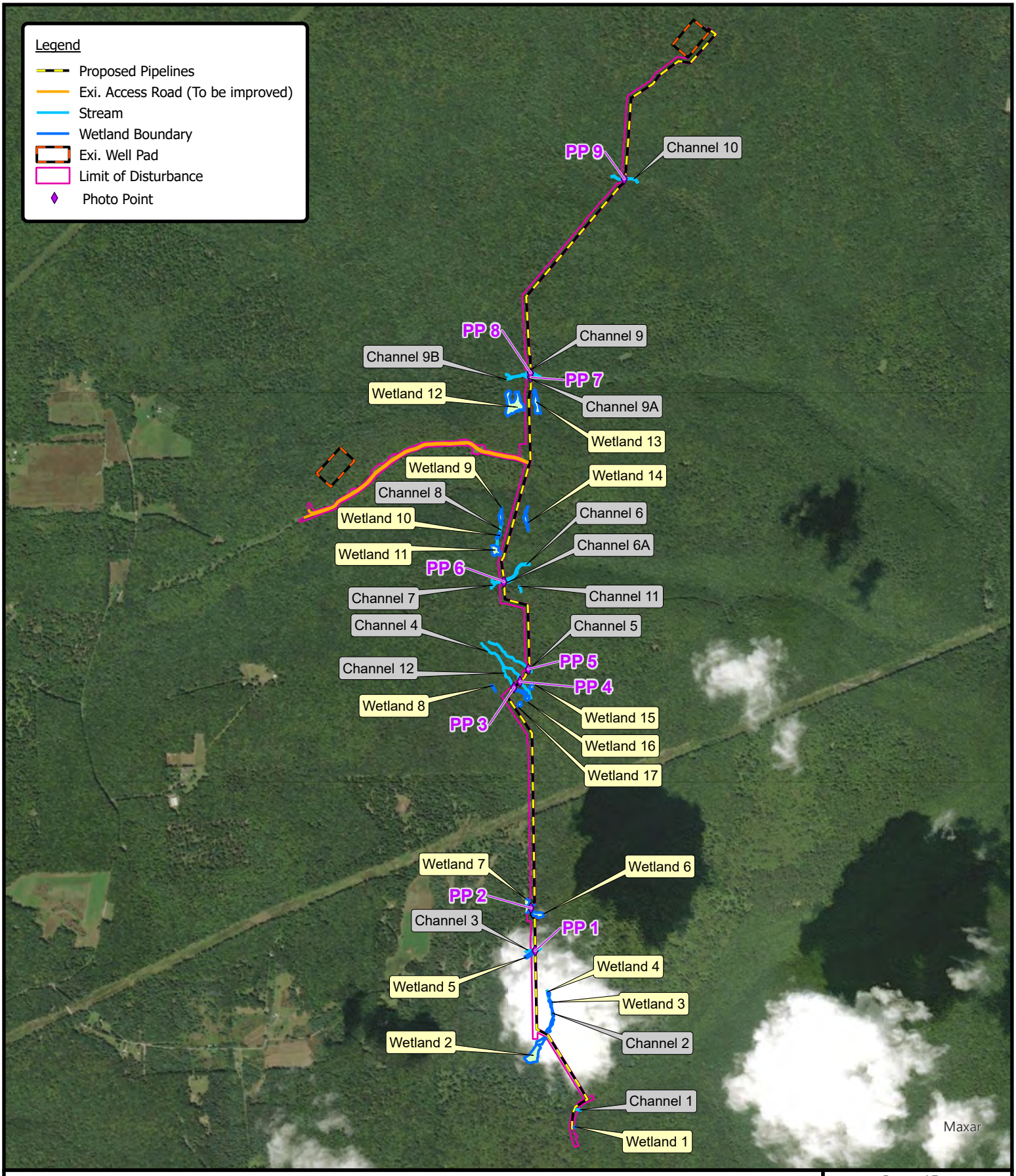

Photo Location Map for the Phase IV Pipeline

Cummings and McHenry Townships, Lycoming County, PA

N

Central Coordinates:
41.43°N 77.3907°W

0 2,000 4,000Feet

USGS Quadrangle
Cammal

Prepared For:
EQT

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

ATTACHMENT L:
ENVIRONMENTAL ASSESSMENT FORM

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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:			☒	JPA Attachment J & Page 1
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.			☒	JPA Attachment J & Pages 1-2
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.			☒	Attached Wetland Delineation Report
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		Page 3
ii. National natural landmark	☐ Yes	☒ No		Page 3
iii. National wildlife refuge, or Federal, state, local or private wildlife or plant sanctuaries	☐ Yes	☒ No		Page 3
iv. State Game Lands	☐ Yes	☒ No		Page 3
v. Areas identified as prime farmland	☒ Yes	☐ No		Page 3
vi. Source for a public water supply	☐ Yes	☒ No		Page 3
vii. A National Wild or Scenic River or the Commonwealth's Scenic Rivers System	☐ Yes	☒ No		Page 3
viii. Designated Federal wilderness area	☐ Yes	☒ No		Page 3
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.			☒	Attached Wetland Delineation Report & Page 4
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.			☒	JPA Attachment G
Did the PNDI search or agency coordination identify any potential conflicts?	☒ Yes	☐ No		JPA Attachment G & Page 4
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		JPA Attachment G & Page 4Pages
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.	☒	Pages 4-7
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).	☒	Page 8
B. If any questions from **S2.A** Standard Information Response questions were answered YES, discuss in detail any potential impacts to those resource(s).	☒	Page 8
***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.	☒	Page 8
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.	☒	Pages 9-10
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.	☒	Page 10
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.	☒	JPA Attachment S
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.	☒	Page 10
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.	☒	Page 10
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.	☒	JPA Attachment S
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.	☒	JPA Attachment H
C. Provide the results from application of the Pennsylvania Function-Based Aquatic Resource Compensation Protocol. Identify and discuss any actions undertaken to provide compensatory mitigation , a detailed discussion of the proposed compensation actions and how they will offset the lost resource functions, include a comparison of the results from Section 6.0 of the Pennsylvania Function-Based Aquatic Resource Compensation Protocol with the results from Section 5.0. When applicable provide detailed plans including performance standards and success criteria.	☒	JPA Attachement T
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 or in lieu fee credits **and** conduct permittee responsible mitigation; both the credit provider and mitigation plan information shall be submitted.	☒	JPA Attachement T
Does the applicant propose to utilize an approved mitigation bank or PA's in lieu fee program to provide all or a portion of the compensation? ☒ Yes ☐ No		JPA Attachement T
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.	☒	N/A
Note: All or portions of this Module likely apply to "Small Project" type applications and waiver of this section 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	04/05/2024 Date	

ATTACHMENT L

MODULE S1: PROJECT SUMMARY

S1.A.

S1.A.1.: The project does not require more than one Ch. 105 permit and will not be completed in more than one phase.

S1.B.

S1.B.1.: A detailed discussion of the project purpose and need can be found in Attachment J of this application. A discussion of the alternative analysis can be found in Attachment S of this application. The project will not have significant adverse effects on Exceptional Value wetlands or Other wetlands.

S1.B.2.: The Phase IV Pipeline has been designed to minimize impacts to waterbodies to the greatest extent practical. The project maintains the absolute minimum constructible width throughout the corridor. However, certain aquatic resources must be crossed by the pipeline in order for it to be able to fulfill its intended purpose. Because this is a linear project it is considered by design to be a water dependent project since it cannot fulfill its intended purpose without crossing said aquatic resources.

S1.B.3.: The summary table from S2.B. is located below:

Table S2.B.1-5: Aquatic Resources Present That May Be Affected on the Project Site

Project Specific Unique Resource Identifier	Aquatic Resource Type	Estimated Amt. of Aquatic Resource Delineated			Wetland (EV = Exceptional Value; O=Other)	Avg. Stream Width (ft.)	Title 25 Pa. Code Chapter 93 Designated Use Classification	Title 25 Pa. Code Chapter 93 Existing Use Classification	Approved Trout Waters (Y/N)	Wild Trout Waters (Y/N)	Class A Wild Trout Waters (Y/N)
		Wetland Area (acres)	Stream Length (ft.)	Floodway Area (acres)							
Wetland 7	Wetland	0.34	--	--	O	--	--	--	--	--	--
Channel 1	Watercourse - Floodway	--	109	0.07	--	2	CWF	HQ-CWF	N	Y	N
Channel 3	Watercourse - Floodway	--	284	0.33	--	8	CWF	HQ-CWF	N	Y	N
Channel 4	Watercourse - Floodway	--	496	0.52	--	4	CWF	HQ-CWF	N	Y	N
Channel 5	Watercourse - Floodway	--	302	0.84	--	4	CWF	HQ-CWF	N	Y	N
Channel 6	Watercourse - Floodway	--	440	0.79	--	12	CWF	HQ-CWF	N	Y	N
Channel 9	Watercourse - Floodway	--	634	0.95	--	10	CWF	HQ-CWF	N	Y	N
Channel 9A	Watercourse - Floodway	--	217	0.3	--	8	CWF	HQ-CWF	N	Y	N
Channel 10	Watercourse - Floodway	--	488	0.32	--	12	CWF	HQ-CWF	N	Y	N
Channel 12	Watercourse - Floodway	--	433	0.58	--	4	CWF	HQ-CWF	N	Y	N

S1.B.4.: A summary table from S3.A. is located below:

Table S3.A. Summary Table of Proposed Impacts

Project Specific Unique Resource Identifier	Aquatic Resource Type	Permanent Direct Impacts (acres)	Temporary Direct Impacts (acres)	Permanent Indirect Impacts (acres)	Temporary Indirect Impacts (acres)
Wetland 7	Wetland	0	0.010	0.019	0.025
Channel 1	Watercourse	0	0.0002	0	0.001
Channel 1	Floodway	0	0.006	0	0.037
Channel 3	Watercourse	0	0.002	0.001	0.004
Channel 3	Floodway	0	0.007	0.011	0.017
Channel 4	Watercourse	0	0.002	0.001	0.004
Channel 4	Floodway	0	0.001	0.0004	0.001
Channel 5	Watercourse	0	0.001	0.001	0.004
Channel 5	Floodway	0	0.002	0.001	0.003
Channel 6	Watercourse	0	0.004	0.002	0.012
Channel 6	Floodway	0	0.010	0.015	0.032
Channel 9	Watercourse	0	0.004	0.002	0.011
Channel 9	Floodway	0	0.006	0.014	0.031
Channel 9A	Watercourse	0	0.002	0.001	0.005
Channel 9A	Floodway	0	0.006	0.012	0.026
Channel 10	Watercourse	0	0.004	0.002	0.012
Channel 10	Floodway	0	0.009	0.012	0.024
Channel 12	Watercourse	0	0.001	0.0002	0.001
Channel 12	Floodway	0	0.001	0.002	0.002
	Total	**0**	**0.0782**	**0.0966**	**0.252**

MODULE S2: RESOURCE IDENTIFICATION AND CHARACTERIZATION

S2.A.

S2.A.1.: Information pertaining to qualifications of preparers can be found in S2.A.2. Resource Identification and Wetland Delineation Report, Phase IV Pipeline, Appendix C: Qualifications.

S2.A.2.: The Resource Identification and Wetland Delineation Report, Phase IV Pipeline has been attached at the end of this document.

S2.A.3: Information related to the watercourses located can be found in S2.A.2. Resource Identification and Wetland Delineation Report, Phase IV Pipeline. Cross-section views of the watercourses, where applicable, can be found in Attachment H of this application. The determination of the feature as being a watercourse and the hydrologic flow status of the feature was determined by some or all of the following; the time of year the investigation occurred and the visible flow, substrate condition, and the presence/absence of a benthic macroinvertebrate community based on viewing rocks and other debris in the channel.

S2.A.4: Please refer to Figure 1 attached to this document and Attachment D, H & I of this application for location information.

S2.A.5: *i. National, state, or local park, forest, or recreation area*

Portions of this project are located within the Tiadaghton State Forest, including the crossings of Channel 1, Channel 9 and Channel 9A.

ii. National natural landmark

There are no National natural landmarks within or adjacent to the project.

iii. National wildlife refuge, or Federal, state, local or private wildlife or plant sanctuaries

The project area is not located within a wildlife rufuge, or Federal, state, local or private wildlife or plant sanctuary.

iv. State Game Lands

Portions of this project are located within the SGL-75, including the crossings of Channel 4, Channel 5, Channel 6, Channel 10 and Channel 12.

v. Areas identified as prime farmland

Clymer channery loam (CmB), Cookport loam (CoB) and Leck kill channery silt loam (LkB) are designated as prime farmland.

vi. Source for public water supply

There are no public water supplies within or adjacent to the project.

vii. A National Wild or Scenic River or the Commonwealth's Scenic Rivers System

There are no National Wild or Scenic Rivers or the Commonwealth's Scenic Rivers System within or adjacent to the project.

viii. Designated Federal Wilderness Area

There are no Federal Wilderness Areas within or adjacent to the project.

S2.B.

S2.B.1 through S2.B.5: See Table S2.B.1-5 below. Impacts to one (1) wetland (Wetland 7), which is not classified as Exceptional Value (EV) is proposed as part of this project. Wetland 7 does not serve as habitat for fauna or flora listed as "threatened" or "endangered" under the Endangered Species Act; is not hydrologically connected to or located within ½-mile of wetlands which contain "threatened" or "endangered" species; is not located in or along the floodplain of the reach of a wild trout stream or waters listed as exceptional value under Chapter 93 and the floodplain of streams tributary thereto, or wetlands within the corridor of a watercourse or body of water that has been designated as a National wild or scenic river in accordance with the Wild and Scenic Rivers Act of 1968 or the Pennsylvania Scenic Rivers Act.

Table S2.B.1-5: Aquatic Resources Present That May Be Affected on the Project Site

Project Specific Unique Resource Identifier	Aquatic Resource Type	Estimated Amt. of Aquatic Resource Delineated			Wetland (EV = Exceptional Value; O=Other)	Avg. Stream Width (ft.)	Title 25 Pa. Code Chapter 93 Designated Use Classification	Title 25 Pa. Code Chapter 93 Existing Use Classification	Approved Trout Waters (Y/N)	Wild Trout Waters (Y/N)	Class A Wild Trout Waters (Y/N)
		Wetland Area (acres)	Stream Length (ft.)	Floodway Area (acres)							
Wetland 7	Wetland	0.34	--	--	O	--	--	--	--	--	--
Channel 1	Watercourse - Floodway	--	109	0.07	--	2	CWF	HQ-CWF	N	Y	N
Channel 3	Watercourse - Floodway	--	284	0.33	--	8	CWF	HQ-CWF	N	Y	N
Channel 4	Watercourse - Floodway	--	496	0.52	--	4	CWF	HQ-CWF	N	Y	N
Channel 5	Watercourse - Floodway	--	302	0.84	--	4	CWF	HQ-CWF	N	Y	N
Channel 6	Watercourse - Floodway	--	440	0.79	--	12	CWF	HQ-CWF	N	Y	N
Channel 9	Watercourse - Floodway	--	634	0.95	--	10	CWF	HQ-CWF	N	Y	N
Channel 9A	Watercourse - Floodway	--	217	0.3	--	8	CWF	HQ-CWF	N	Y	N
Channel 10	Watercourse - Floodway	--	488	0.32	--	12	CWF	HQ-CWF	N	Y	N
Channel 12	Watercourse - Floodway	--	433	0.58	--	4	CWF	HQ-CWF	N	Y	N

S2.C.

S2.C.1.: Please see Attachment G of this application.

S2.C.2.: The PNDI Project Environmental Review Receipt (Project Search ID: PNDI-773242) for Phase IV (SGL 75 Pad F Pipeline) resulted in "No Known Impact" from PGC, DCNR and USFWS. A "Potential Impact" was identified by the PFBC. Following minor changes to the pipeline alignment with avoidance of critical habitat for Timber Rattlesnakes, a clearance letter was provided by DCNR on August 10, 2023 (SIR# 57085). None of the proposed impacts are known to provide habitat for threatened or endangered species and are not hydrologically connected or within 1/2 mile of

wetlands providing habitat for threatened or endangered species per Chapter 105.17(1)(i)&(ii).

S2.D.

S2.D.1.: The table below provides information for Riverine Resources:

Table S2.D.1.i-ii.: Characterization of Riverine Resources That May Be Affected by the Project

Project Specific Unique Resource Identifier	Slope Category	Watershed Size (WS)	PA Riverine Condition Level 2 Score
Channel 1	Low Gradient	Headwater	0.55
Channel 3	Low Gradient	Headwater	0.84
Channel 4	Low Gradient	Headwater	0.81
Channel 5	Low Gradient	Headwater	0.81
Channel 6	Low Gradient	Headwater	0.81
Channel 9	Low Gradient	Headwater	0.83
Channel 9A	Low Gradient	Headwater	0.82
Channel 10	Low Gradient	Headwater	0.82
Channel 12	Low Gradient	Headwater	0.81

iii. The assessment area mapping and data sheets are attached to this Environmental Assessment. Photographs can be found in S2.A.2. Resource Identification and Wetland Delineation Report, Phase IV Pipeline.

Channel 1 (AA-1) is a low gradient, headwater stream found within an existing right-of-way. This stream channel received a Riverine Condition Index (RCI) of 0.55. The channel, which exhibits ephemeral flows with poorly defined bed/bank features, flows east through a culvert beneath Hacket Road to Hacket Fork. The primary variables reducing this RCI are the eroded stream banks and its location within an existing right-of-way, suggesting that its primary function is to convey surface flows following rain events. Biogeochemical and habitat functions are limited by the small size of the watershed and its location within an existing fight-of-way.

Channel 3 (Ott Fork) (AA-2) is a low gradient, headwater stream within forestland. This stream received an RCI of 0.84. The channel, which exhibits perennial flows with variable but predominantly cobble substrate, has generally stable stream banks and a forested riparian zone. These features provide favorable conditions for

colonization and support of aquatic organisms while the riparian zone and zone of influence provide food chain production and wildlife cover.

Channel 4 (UNT Benny's Run) (AA-5) and Channel 5 (UNT Benny's Run) (AA-6) are low gradient, headwater streams within forestland. These stream channels, each receiving an RCI of 0.81, are approximately 4-feet wide at their respective crossing location and have small floodplains with little evidence of overbank flow. The channels, which exhibit perennial flows with predominantly cobble substrate, have generally stable stream banks and a forested riparian zone. These features provide favorable conditions for colonization and support of aquatic organisms while the riparian zone and zone of influence provide food chain production and wildlife cover.

Channel 6 (Bark Cabin Run) (AA-7) is a low gradient, headwater stream within forestland. This stream received an RCI of 0.81. The channel, which exhibits perennial flows with variable but predominantly cobble substrate, has generally stable stream banks and a forested riparian zone. These features provide favorable conditions for colonization and support of aquatic organisms while the riparian zone and zone of influence provide food chain production and wildlife cover.

Channel 9 (Silver Branch) (AA-9) is a low gradient, headwater stream within forestland. This stream received an RCI of 0.83. The channel, which exhibits perennial flows with variable but predominantly cobble substrate, has generally stable stream banks and a forested riparian zone. These features provide favorable conditions for colonization and support of aquatic organisms while the riparian zone and zone of influence provide food chain production and wildlife cover.

Channel 9A (AA-8) is an ephemeral side channel for the low gradient, headwater stream, Channel 9/Silver Branch. This stream received an RCI of 0.82. The channel, which exhibits ephemeral flows as overflow from the main channel, contains boulder size substrate with generally stable stream banks and a forested riparian zone. As an ephemeral stream channel, instream habitat is limited; but the riparian zone and zone of influence do provide food chain production and wildlife cover.

Channel 10 (UNT Silver Branch) (AA-10) is a low gradient, headwater stream within forestland. This stream received an RCI of 0.82. The channel, which exhibits perennial flows with variable but predominantly cobble substrate, has generally stable stream banks and a forested riparian zone. These features provide favorable conditions for colonization and support of aquatic organisms while the riparian zone and zone of influence provide food chain production and wildlife cover.

Channel 12 (UNT Barry's Run) (AA-4) is a low gradient, headwater stream within forestland. This stream received an RCI of 0.81. The channel, which exhibits intermittent flows with organic substrate, has generally stable stream banks and a forested riparian zone. As an intermittent stream channel, instream habitat is limited;

but the riparian zone and zone of influence do provide food chain production and wildlife cover.

iv. No observable limitations were noted in the ability of these streams within the area investigated to function related to hydrologic, biogeochemical and habitat attributes for their stream type and condition. Please refer to S2.D.1.iii. for an assessment of the resource condition of the streams.

v. No effect or changes on the property or riparian rights of owners upstream, downstream, or adjacent to the project, resulting from the subfacility are anticipated. No permanent increase or diminution of flow or direction of flow is proposed.

S2.D.2.: The table below provides information for Wetland Resources:

Table S2.D.2.i-iv.: Characterization of Wetland Resources That May Be Affected by the Project

Project Specific Unique Resource Identifier	Cowardin Code	HGM Code	Palustrine Community Classification	PA Wetland Condition Level 2 Score
Wetland 7	PFO	SLOPE	Hemlock Palustrine Forest	0.88

v. The assessment area mapping and data sheets are attached to this Environmental Assessment. Photographs can be found in S2.A.2. Resource Identification and Wetland Delineation Report, Phase IV Pipeline.

vi. Wetland 7 is a sloped wetland. It is not anticipated that this project will affect its ability to provide function related to hydrologic processes, biogeochemical processes or habitat provided that the soil surface is returned to its natural slope following construction, as designed. Please refer to S2.D.1.i-iv. for an assessment of resource condition of the wetland.

S2.D.3.: No lacustrine resources were identified within the project area.

S2.D.4.: No other environmental factors, special studies, macro-invertebrate surveys, mussel surveys, HGM functional assessment, habitat evaluation models or substitute methods were utilized as part of this environmental assessment.

MODULE S3: IDENTIFICATION AND DESCRIPTION OF POTENTIAL IMPACTS

S3.A.

A summary table has been provided below for this section:

Table S3.A. Summary Table of Proposed Impacts

Project Specific Unique Resource Identifier	Aquatic Resource Type	Permanent Direct Impacts (acres)	Temporary Direct Impacts (acres)	Permanent Indirect Impacts (acres)	Temporary Indirect Impacts (acres)
Wetland 7	Wetland	0	0.010	0.019	0.025
Channel 1	Watercourse	0	0.0002	0	0.001
Channel 1	Floodway	0	0.006	0	0.037
Channel 3	Watercourse	0	0.002	0.001	0.004
Channel 3	Floodway	0	0.007	0.011	0.017
Channel 4	Watercourse	0	0.002	0.001	0.004
Channel 4	Floodway	0	0.001	0.0004	0.001
Channel 5	Watercourse	0	0.001	0.001	0.004
Channel 5	Floodway	0	0.002	0.001	0.003
Channel 6	Watercourse	0	0.004	0.002	0.012
Channel 6	Floodway	0	0.010	0.015	0.032
Channel 9	Watercourse	0	0.004	0.002	0.011
Channel 9	Floodway	0	0.006	0.014	0.031
Channel 9A	Watercourse	0	0.002	0.001	0.005
Channel 9A	Floodway	0	0.006	0.012	0.026
Channel 10	Watercourse	0	0.004	0.002	0.012
Channel 10	Floodway	0	0.009	0.012	0.024
Channel 12	Watercourse	0	0.001	0.0002	0.001
Channel 12	Floodway	0	0.001	0.002	0.002
	Total	**0**	**0.0782**	**0.0966**	**0.252**

S3.B.

S3.B.1.: Clymer channery loam (CmB), Cookport loam (CoB) and Leck kill channery silt loam (LkB) are designated as prime farmland. The areas designated as prime farmland are not currently being used as farmland and the proposed project will not prevent these areas from being used as farmland in the future.

S3.C.

S3.C.1-10: Table S3.C.1-10. Subfacility Details, located at the end of this document, provides the information requested in this section.

S3.D.

S3.D.1.: PIPE, Pipeline or Conduit
TMPWI, Temporary Wetland Impact
WTIIM, Wetland Indirect Impact

Temporary Direct Impacts on Wetland 7 are proposed at the open cut trench for pipe installation and the timber mat. Permanent Indirect Impacts on Wetland 7 are proposed for a 15-foot-wide maintenance area. Temporary Indirect Impacts on Wetland 7 are proposed for use as workspace.

Temporary Indirect Impacts on the Stream Channels and Floodways are proposed at the timber bridge crossing location. Permanent Indirect Impacts on the Stream Channels and Floodways are proposed for the open-cut trench for pipe installation. Temporary Indirect Impacts on the Stream Channels and Floodways are proposed for use as workspace.

S3.D.2.i: No significant hydrologic alterations are anticipated as a result of the installation of the pipeline. No permanent increase or diminution of flow or direction of flow is proposed as part of the resource crossings. Hydrologic impacts resulting from wetland impacts are expected to be minimal. Trench plugs will be used on each end of all stream and wetland crossing to assure that no increase or diminution of hydrology occurs. The use of timber mats or other low-impact movable devices will be used to prevent compaction from affecting the flow of hydrology.

S3.D.2.ii.: No significant biogeochemical impacts are anticipated as a result of the project. The use of appropriate erosion and sedimentation controls, waterbars with sediment barrier outlets, trench plugs at all crossing locations, and timing construction for low flow or no flow conditions, will protect the resources from hydrodynamic changes and maintain the current water quality. Food chain production will be temporarily interrupted during construction but will be offset by the mitigation. No impacts to water quality are anticipated as proper erosion and sedimentation control plan will be implemented during construction.

S3.D.2.iii.: Impacts to general habitat (nesting, spawning, rearing, resting, migration, feeding and escape cover) will be minimal. All stream crossings will be performed during low or no flow conditions and Coffer Dam and Pump Bypass will be used to avoid impacts to fisheries. There are no anticipated impacts to the riverine resources ability to provide function regarding general habitat due to the above precautions. No construction will take place in or along native wild trout streams between October 1 and December 31. Impacts to wetland and riverine resources are not anticipated to have a significant impact on regional resources or overall biodiversity.

S3.D.2.iv.: Public recreational opportunities such as hunting and fishing are available within State Forest Land and Game Land but are limited due to the relatively small size of the resources being impacted and temporary nature of the construction. The Bark Cabin Natural Area, located to the east of the project area, has been avoided. The Wolf Run Wild Area, located to the west of the project area, has been avoided. No indirect impacts to these areas will occur as appropriate erosion and sedimentation control measures will be in place prior to construction.

S3.D.3.: The project is anticipated to have minimal effect on the overall regime and ecology of the resources due to the implementation of appropriate erosion and sedimentation controls, the host of best management practices previously discussed and that most of the impacts are temporary.

S3.D.4.: No effect or changes on the property or riparian rights of owners upstream, downstream, or adjacent to the project, resulting from the subfacility are anticipated. No permanent increase or diminution of flow or direction of flow is proposed and appropriate best management practices as shown on the Site Plans will be implemented to avoid unintended changes.

S3.E.

S3.E.1.: An Antidegradation Analysis will be submitted as part of the ESCGP-3 application for this project.

S3.F.

S3.F.1-3.: An alternatives analysis can be found in Attachment S of this application.

S3.G.

S3.G.1.: No direct or indirect environmental impacts are anticipated on other adjacent land. A proper erosion and sedimentation control plan will be followed during construction allowing flows to pass through the project area with no permanent increase or diminution of flow or direction of flow proposed. The Bark Cabin Natural Area parallels the project area to the east but is entirely avoided by the proposed pipeline and construction activities; since proper erosion and sedimentation controls will be in place prior to construction, no indirect impacts are anticipated. No impacts to The Wolf Run Wild Area will occur as a result of the proposed pipeline as it is located upslope and greater than 1-mile from the project area.

S3.G.2.: No other water obstructions or encroachments are necessary to fulfill the project purpose.

S3.H.

S3.H.1-2.: No potential cumulative environmental impacts associated with this project are anticipated.

MODULE S4: MITIGATION PLAN

The PIESCES in-lieu fee program will be utilized for mitigation; see Attachment T.

Table S3.C.1-10. Subfacility Details

Subfacility Type	Description	ID	County	Municipality	Latitude	Longitude	Impacted Area	Classification	Reg Classification
TMPWI	Temporary Wetland Impact	Wetland 7	Lycoming	McHenry Twp	41.415957	-77.389486	0.035	PFO	O
WTIIM	Wetland Indirect Impact	Wetland 7	Lycoming	McHenry Twp	41.415978	-77389448	0.019	PFO	O

Table S3.C.1-10. Subfacility Details

Subfacility Type	Description	Impact Type	ID	County	Municipality	Latitude	Longitude	Impacted Area	Type	Product
PIPE	Pipeline or Conduit	Temporary	Channel 1	Lycoming	McHenry Twp	41.4072	-77.386915	0.0002	TRNC	PETRO
PIPE	Pipeline or Conduit	Temporary	Channel 3	Lycoming	McHenry Twp	41.414116	-77.38917	0.006	TRNC	PETRO
PIPE	Pipeline or Conduit	Permanent	Channel 3	Lycoming	McHenry Twp	41.414114	-77.389216	0.001	TRNC	PETRO
PIPE	Pipeline or Conduit	Temporary	Channel 4	Lycoming	McHenry Twp	41.425882	-77.390062	0.006	TRNC	PETRO
PIPE	Pipeline or Conduit	Permanent	Channel 4	Lycoming	McHenry Twp	41.425849	-77.390034	0.0008	TRNC	PETRO
PIPE	Pipeline or Conduit	Temporary	Channel 5	Lycoming	McHenry Twp	41.42642	-77.389589	0.006	TRNC	PETRO
PIPE	Pipeline or Conduit	Permanent	Channel 5	Lycoming	McHenry Twp	41.426394	-77.389557	0.001	TRNC	PETRO
PIPE	Pipeline or Conduit	Temporary	Channel 6	Lycoming	McHenry Twp	41.430196	-77.390919	0.015	TRNC	PETRO
PIPE	Pipeline or Conduit	Permanent	Channel 6	Lycoming	McHenry Twp	41.430196	-77.390936	0.002	TRNC	PETRO
PIPE	Pipeline or Conduit	Temporary	Channel 9	Lycoming	McHenry Twp	41.439292	-77.389331	0.014	TRNC	PETRO
PIPE	Pipeline or Conduit	Permanent	Channel 9	Lycoming	McHenry Twp	41.439294	-77.389351	0.002	TRNC	PETRO
PIPE	Pipeline or Conduit	Temporary	Channel 9A	Lycoming	McHenry Twp	41.439102	-77.389328	0.007	TRNC	PETRO
PIPE	Pipeline or Conduit	Permanent	Channel 9A	Lycoming	McHenry Twp	41.439099	-77.389347	0.0006	TRNC	PETRO
PIPE	Pipeline or Conduit	Temporary	Channel 10	Lycoming	McHenry Twp	41.44773	-77.383844	0.015	TRNC	PETRO
PIPE	Pipeline or Conduit	Permanent	Channel 10	Lycoming	McHenry Twp	41.447727	-77.383877	0.002	TRNC	PETRO
PIPE	Pipeline or Conduit	Temporary	Channel 12	Lycoming	McHenry Twp	41.425625	-77.390407	0.002	TRNC	PETRO
PIPE	Pipeline or Conduit	Permanent	Channel 12	Lycoming	McHenry Twp	41.425595	-77.390386	0.0002	TRNC	PETRO

Legend
1-Mile Buffer
AOI

STATE GAME LANDS NO 75

TIADAGHTON STATE FOREST

Copyright:© 2013 National Geographic Society, i-cubed

1-Mile Buffer Map for the Phase IV Pipeline

Cummings & McHenry Twps, Lycoming County, PA

Central Coordinates:
41.4305°N 77.3903°W

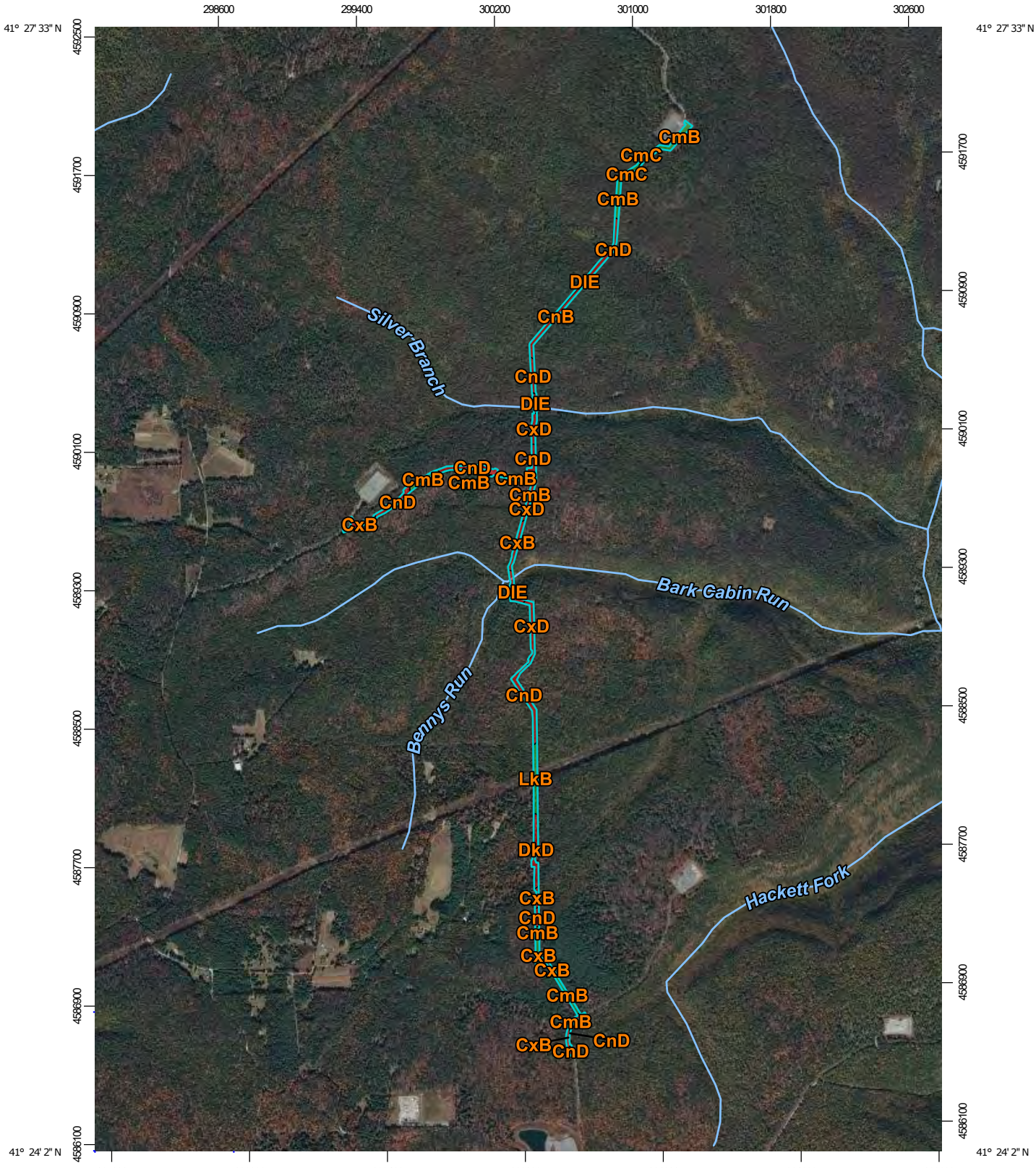
0 3,000 6,000Feet

USGS Quadrangle
Cammal

Prepared For:
PGE Pennsylvania General Energy Co., LLC

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Farmland Classification—Lycoming County, Pennsylvania
(Phase IV Farmland Classification)



Map Scale: 1:31,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 450 900 1800 2700

Feet
0 1500 3000 6000 9000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

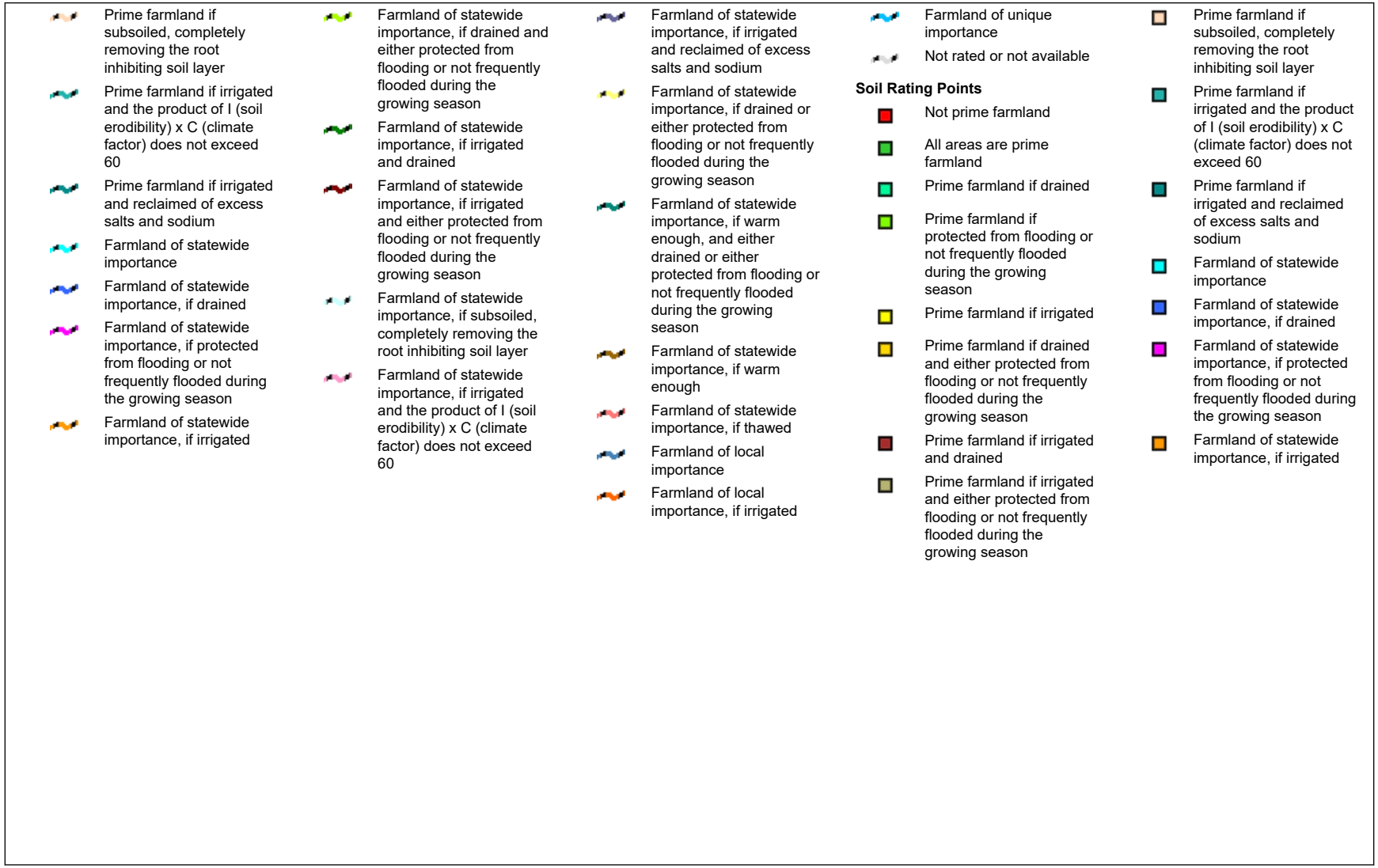
Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of statewide importance, if drained
- Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated
- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season


Prime farmland if subsoiled, completely removing the root inhibiting soil layer
Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
Prime farmland if irrigated and reclaimed of excess salts and sodium
Farmland of statewide importance
Farmland of statewide importance, if drained
Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if irrigated
Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if irrigated and drained
Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if warm enough
Farmland of statewide importance, if thawed
Farmland of local importance
Farmland of local importance, if irrigated
Farmland of unique importance
Not rated or not available
Soil Rating Points
Not prime farmland
All areas are prime farmland
Prime farmland if drained
Prime farmland if protected from flooding or not frequently flooded during the growing season
Prime farmland if irrigated
Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Prime farmland if irrigated and drained
Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
Prime farmland if subsoiled, completely removing the root inhibiting soil layer
Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
Prime farmland if irrigated and reclaimed of excess salts and sodium
Farmland of statewide importance
Farmland of statewide importance, if drained
Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
Farmland of statewide importance, if irrigated

- Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if irrigated and drained
- Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
- Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance, if warm enough
- Farmland of statewide importance, if thawed
- Farmland of local importance
- Farmland of local importance, if irrigated
- Farmland of unique importance
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lycoming County, Pennsylvania
Survey Area Data: Version 17, Sep 6, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 6, 2020—Nov 7, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CmB	Clymer channery loam, 3 to 8 percent slopes	All areas are prime farmland	8.5	20.0%
CmC	Clymer channery loam, 8 to 15 percent slopes	Farmland of statewide importance	0.6	1.4%
CnB	Clymer very stony loam, 0 to 8 percent slopes	Not prime farmland	2.8	6.6%
CnD	Clymer very stony loam, 8 to 25 percent slopes	Not prime farmland	12.3	29.0%
CoB	Cookport loam, 3 to 8 percent slopes	All areas are prime farmland	0.4	0.9%
CxB	Cookport channery loam, 0 to 8 percent slopes, very stony	Not prime farmland	5.7	13.4%
CxD	Cookport channery loam, 8 to 25 percent slopes, very stony	Not prime farmland	4.1	9.5%
DkD	Dekalb very stony sandy loam, 8 to 25 percent slopes	Not prime farmland	2.5	5.9%
DlE	Dekalb and Lehew very stony sandy loams, 25 to 80 percent slopes	Not prime farmland	3.3	7.8%
LkB	Leck kill channery silt loam, 3 to 8 percent slopes	All areas are prime farmland	2.3	5.4%
Totals for Area of Interest			**42.6**	**100.0%**

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

AA-1 (Channel 1) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

Cummings Twp., Lycoming County, PA

N

Central Coordinates:
41.4072°N 77.3867°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

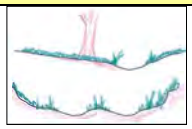
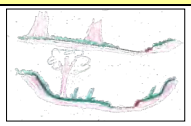
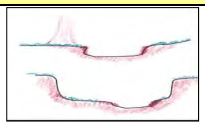
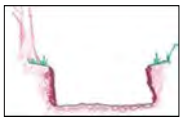
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		Cummings Twp.	6/23/22	Designated: CWF	Existing: EV	AA-1	109 LF
Latitude	41.407196	Longitude	-77.386949	FGM Level 1 Channel Classification				

Evaluator(s)	Stream Name and Information	Notes: Ephemeral channel with poorly defined bed/bank. Located within existing ROW, before entering culvert and flowing through forested area toward Hacket Fork.
Brian Fleming/Chris Frey	Channel 1 (UNT Hacket Fork)	

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

	Condition Category				
	Optimal	**Suboptimal**	**Marginal**	**Poor**	**Severe**
Channel / Floodplain	 **Channel Geometry:** These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. **Channel Stability:** Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 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: Banks eroded along 25-50% of reach.

CI = (Score)/20		CI
SCORE	10	0.50

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

	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	**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: The floodplain is estimated at 50 feet due to the small drainage size of the stream.

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

								Side Sub-Index	
Both Sides Combined	Condition Category								
	% Riparian Area:	57%	43%	0%	0%	0%	0%	**0.59**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	6	0	0	0	0		
	Total Sub-score:	**9.12**	**2.58**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

CI
0.59

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	**High Poor:** Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition. **Low Poor:** Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.	
		High / Low	High / Low	High / Low	
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1	

1. Identify Condition Category areas along the floodplain using the descriptors above.
2. Estimate the % area within each condition category.
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below. Ensure the sums of % Riparian ZOI Blocks equal 100

	Condition Category							Side Sub-Index	
Both Sides Combined	% Riparian Area:	62%	38%	0%	0%	0%	0%	**0.61**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	6	0	0	0	0		
	Total Sub-score:	**9.92**	**2.28**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2** → **CI = 0.61**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	Condition Category				Comments: N/A - Ephemeral Stream Channel
	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 0** → **CI 0.00**

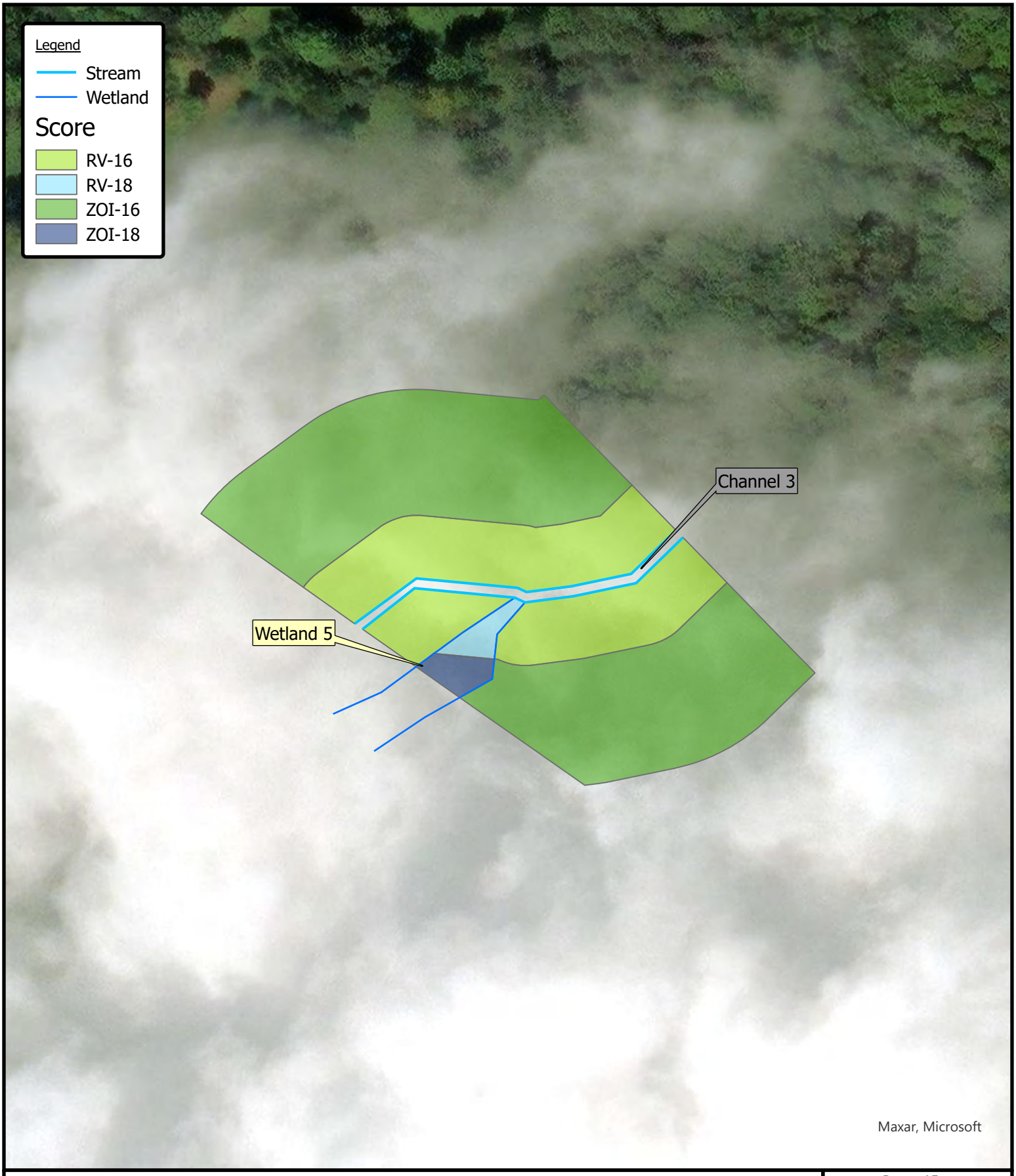
5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

	Condition Category				Comments: Channel culverted beneath Hacketts Rd.
	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	**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 10** → **CI 0.50**

RIVERINE CONDITION INDEX (RCI)	**RCI**
***NOTE:* The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/4** → **0.55**

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

General Comments:



AA-2 (Channel 3) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4141°N 77.3894°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:
PGE Pennsylvania General Energy Co., LLC

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

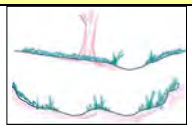
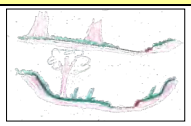
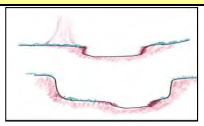
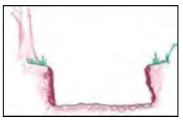
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		McHenry Twp.	6/22/23	Designated: CWF	Existing: HQ-CWF	AA-2	284 LF
Latitude	41.414048	Longitude	-77.389819	FGM Level 1 Channel Classification				

Evaluator(s)	Stream Name and Information	Notes: Perennial stream with cobble substrate.
Brian Fleming/Chris Frey	Channel 3 (Ott Fork)	

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

	Condition Category				
	Optimal	**Suboptimal**	**Marginal**	**Poor**	**Severe**
Channel / Floodplain	 **Channel Geometry:** These channels show very little incision or widening and little or no evidence of active erosion. Anastomosing channels may be present. **Channel Stability:** Visual indicators include: 1) the banks are not eroding along greater than 5% of the reach; 2) natural vegetative or rock stability features are present along greater than 80% of the banks; 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: Generally stable stream banks with some undercutting beneath tree roots along banks; baseflow connected to rooting depth of vegetation.

CI = (Score)/20		CI
SCORE	18	0.90

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

	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		**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: Not a mapped floodplain. The floodplain considered approximately 50 feet due to the small drainage size of the stream. Floodplain is a forest community with ~60% canopy cover; wetland 5 (PFO) abuts strem channel.

1. Identify Condition Category areas along the floodplain using the descriptors above.
2. Estimate the % area within each condition category.
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below. Ensure the sum of the % Riparian Area Blocks equal 100

	Condition Category							Side Sub-Index	
Both Sides Combined	% Riparian Area:	96%	4%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**15.36**	**0.72**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

CI
0.80

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

1. Identify Condition Category areas along the floodplain using the descriptors above.
2. Estimate the % area within each condition category.
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below. Ensure the sums of % Riparian ZOI Blocks equal 100

	Condition Category							Side Sub-Index	
Both Sides Combined	% Riparian Area:	98%	2%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**15.68**	**0.36**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2** — **CI: 0.80**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	Condition Category				Comments: Varied and stable substrate with significant woody debris, shaded along entire reach.
	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 18** — **CI: 0.90**

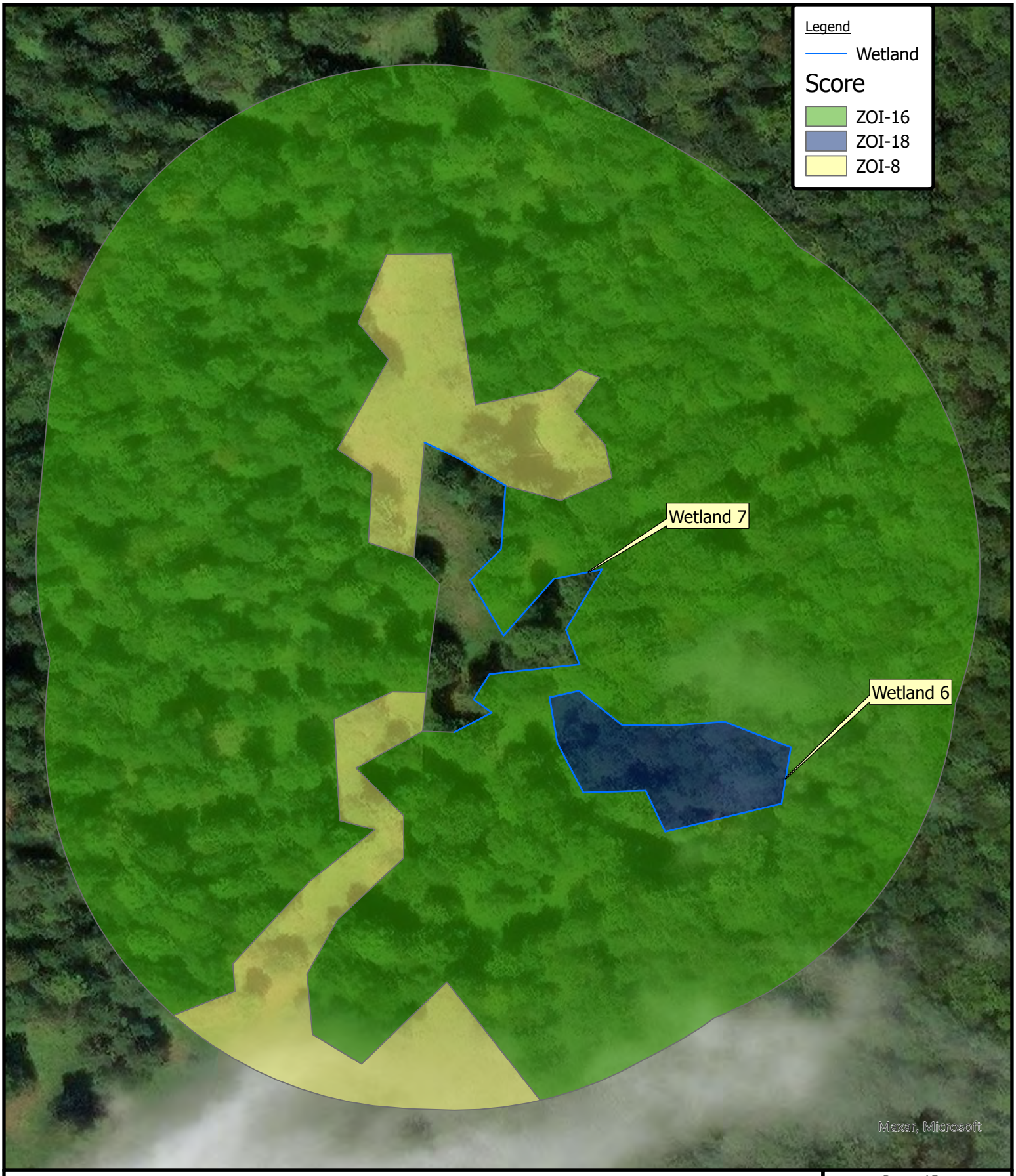
5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

	Condition Category				Comments: No recent channel alterations noted.
	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	**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 16** — **CI: 0.80**

RIVERINE CONDITION INDEX (RCI)	**RCI**
***NOTE:* The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/5** — **0.84**

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:



AA-3 (Wetland 7) Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4161°N 77.3895°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

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)	
	Phase IV Pipeline	6/23/22	Permanent: 0.019; Temporary: 0.035	AA-3	0.340	

Name(s) of Evaluator(s)	Lat (dd)	Long (dd)	Notes:
Brian Fleming/Chris Frey	41.416067	-77.389625	Wetland 7

General Comments: Hemlock Forested Wetland

1. Wetland Zone of Influence Condition Index

	Condition Category																				CI = Total Score/20
	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.		
SCORE	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	

1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.
2. Estimate the % area within each condition category. Calculators are provided for you below.
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.

Total Score = SUM(%Areas*Scores)

	Condition Category:							Total Score:	CI
Scoring:	% ZOI Area:	87%	10%	3%	**0%**	**0%**	**0%**		
	Score:	16	8	18	**0**	**0**	**0**		
	Total Sub-score:	13.92	0.80	0.54	0.00	0.00	0.00	**15.26**	**0.76**

Comments: ZOI primarily forest community with ~65% canopy cover. Some areas of dense herbaceous vegetation to north and south of wetland. Wetland 6 (PFO) within ZOI to the south.

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:

	Condition Categories																				CI = Total Score/20
	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.		
SCORE	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	

	Condition Score	Weighting	Sub-Scores	
a. Roadbed 0-100:	19	*** (0.67)**	13	
b. Roadbed 100-300:	19	*** (0.33)**	6	
		Total Score:	**19**	**0.95**

Comments:

3. Vegetation Condition Index

	Condition Category																				
a. Invasive	Optimal					Suboptimal					Marginal					Poor					

Wetland Condition Assessment Form

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

For use in all wetland classifications found within Pennsylvania except those found within the banks of a watercourse.

Species Presence	**High Optimal:** No invasives present.			**Low Optimal:** <5% of the total AA contains invasive species.		**High Suboptimal:** >5% but less than 10% of the total AA contains invasive species.			**Low Suboptimal:** >10% but less than 20% of the total AA contains invasive species.		**High Marginal:** >20% but less than 30% of the total AA contains invasive species.			**Low Marginal:** >30% but less than 50% of the total AA contains invasive species.	> 50% of the total AA contains invasive species.				
SCORE	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**

Comments:

	Condition Category																				
	Optimal					**Suboptimal**					**Marginal**					**Poor**					
b. Vegetation Stressor Presence	**High Optimal:** No vegetation stressors present within the AA boundary.			**Low Optimal:** One vegetation stressor present within the AA boundary.		**High Suboptimal:** Two vegetation stressors present within the AA boundary.			**Low Suboptimal:** Three vegetation stressors present within the AA boundary.		**High Marginal:** Four vegetation stressors present within the AA boundary.			**Low Marginal:** Five vegetation stressors present within the AA boundary.	Greater than five vegetation stressors present within the AA boundary.					**CI = Total Score/40**
SCORE	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	

Comments:	**a. Invasive Sub-Score:**	14	**Total Score**
	b. Vegetation Sub-Score:	19	**33**

0.83

4. Hydrologic Modification Index

	Condition Category																				
	Optimal					**Suboptimal**					**Marginal**					**Poor**					
Hydrologic Modification Stressor Presence	**High Optimal:** No hydrologic stressors present within the AA boundary.			**Low Optimal:** One hydrologic stressor present within the AA boundary.		**High Suboptimal:** Two hydrologic stressors present within the AA boundary.			**Low Suboptimal:** Three hydrologic stressors present within the AA boundary.		**High Marginal:** Four hydrologic stressors present within the AA boundary.			**Low Marginal:** Five hydrologic stressors present within the AA boundary.	Greater than five hydrologic stressors present within the AA boundary.					**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:	**Score:**	**19**	**0.95**

5. Sediment Stressor Index

	Condition Category																				
	Optimal					**Suboptimal**					**Marginal**					**Poor**					
Sediment Stressor Presence	**High Optimal:** No sediment stressors present within the AA boundary.			**Low Optimal:** One sediment stressor present within the AA boundary.		**High Suboptimal:** Two sediment stressors present within the AA boundary.			**Low Suboptimal:** Three sediment stressors present within the AA boundary.		**High Marginal:** Four sediment stressors present within the AA boundary.			**Low Marginal:** Five sediment stressors present within the AA boundary.	Greater than five sediment stressors present within the AA boundary.					**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:	**Score:**	**19**	**0.95**

6. Water Quality Stressor Index

	Condition Category																				
	Optimal					**Suboptimal**					**Marginal**					**Poor**					
a. Eutro-phication Stressor Presence	No eutrophication stressors present within the AA boundary.					One eutrophication stressors present within the AA boundary.					Two eutrophication stressors present within the AA boundary.					Three eutrophication stressors present within the AA boundary.					
SCORE	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	

Comments:

	Condition Category																				
	Optimal					**Suboptimal**					**Marginal**					**Poor**					
b. Contaminant / Toxicity Stressor Presence	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.					**CI = Total Score/40**
SCORE	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	

Comments:	**a. Eutrophication Score**	17	**Total Score:**
	b. Contaminant Score	17	**34**

0.85

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:**	**0.88**

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)
Phase IV Pipeline			6/23/22	Brian Fleming/Chris Frey
Resource Identifier	**AA #**	**Lat (dd)**	**Long (dd)**	**Notes:**
Wetland 7	AA-3	41.416067	-77.389625	

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.		1, 2 or 4		100-300 ft.		1, 2 or 4	
Total Scores:	0-100 ft.	0			100-300 ft.	0		

Road Comments:

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

STRESSOR WORKSHEET

	Occurrence in AA		
	Y	#'s	N
Vegetation Alteration			
Mowing			X
Moderate livestock grazing (within one year)			X
Crops (annual row crops, within one year)			X
Selective tree harvesting/cutting (>50% removal, within 5 years)			X
Right-of-way clearing (mechanical or chemical)			X
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X
Removal of woody debris			X
Aquatic weed control (mechanical or herbicide)			X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X
Plantation (conversion from typical natural tree species, including orchards)			X
Other:			X
Total Number:	**0**		
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			X
Dike/weir/dam			X
Filling/grading			X
Dredging/excavation			X
Stormwater inputs (culvert or similar concentrated urban runoff)			X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)			X
Dead or dying trees (trunks still standing) *			X
Stream alteration (channelization or incision)			X
Other:			X
Total Number:	**0**		
Sedimentation			
Sediment deposits/plumes			X
Eroding banks/slopes			X
Active construction (earth disturbance for development)			X
Active plowing (plowing for crop planting in past year)			X
Intensive livestock grazing (in one year, ground is >50% bare)			X
Active selective forestry harvesting (within one year)			X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X
Other:			X
Total Number:	**0**		
Eutrophication			
Direct discharges from agricultural feedlots, manure pits, etc.			X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X
Heavy or moderately heavy formation of algal mats			X
Other:			X
Total Number:	**0**		
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			X
Obvious spills, discharges, plumes, odors, etc.			X
Acidic drainages (mined sites, quarries, road cuts)			X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X
Fish or wildlife kills or obvious disease or abnormalities observed			X
Excessive garbage/dumping			X
Other:			X
Total Number:	**0**		

**** Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.***

Pennsylvania Wetland Condition Level 2 Rapid Assessment
(Document No. 310-2137-002)
Pennsylvania Department of Environmental Protection

Invasive Species Presence Worksheet

Are invasive species (from list) present at the site in any layer? YES NO

If listed species present, enter the percent areal coverage for each species below:

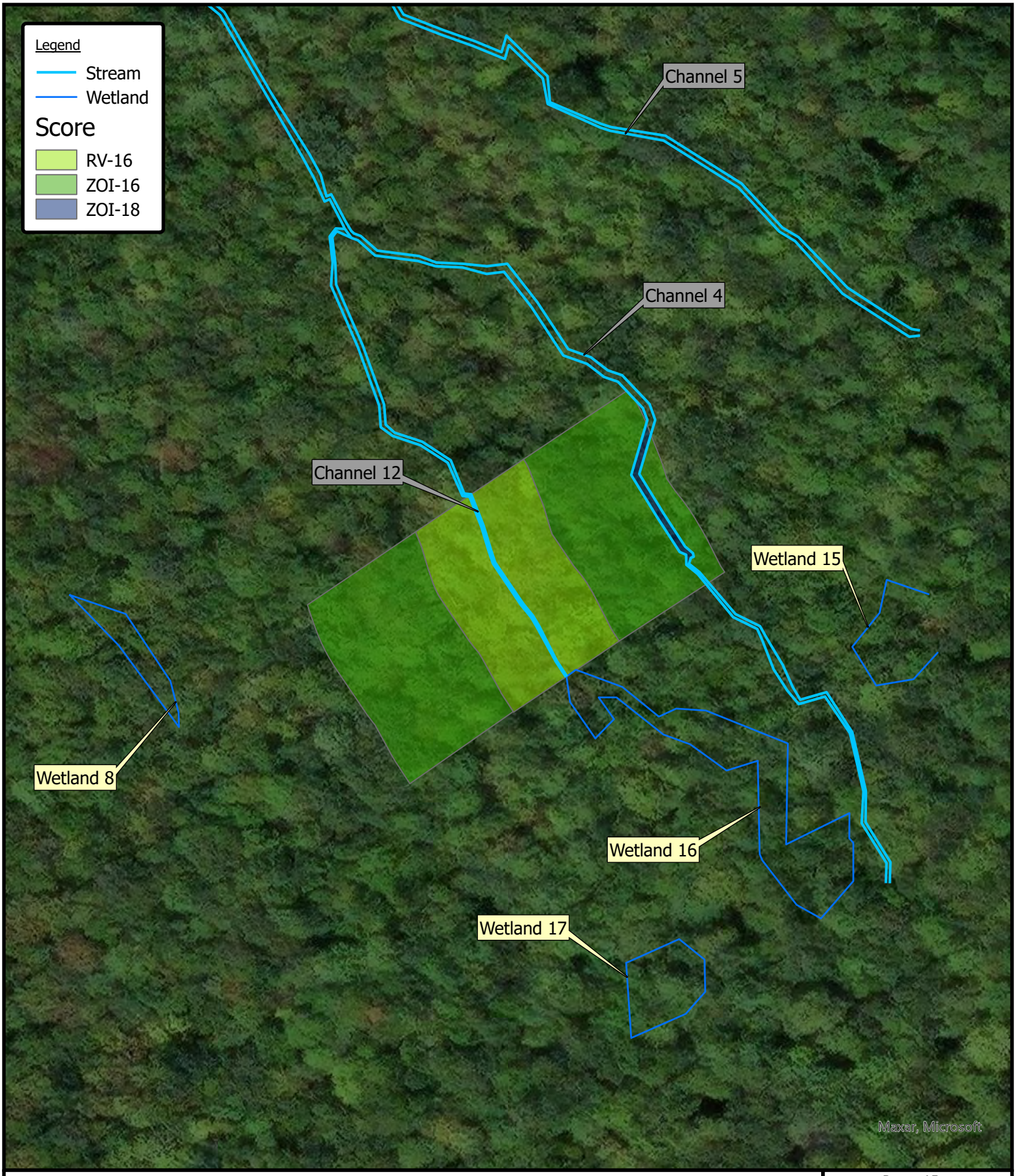
Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	*Species Code*	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
beth		10							

Total % relative cover of all invasives, collectively on site: 10 %

Comments: Berberis thunbergii found within numerous upland islands throughout wetland.

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*					



AA-4 (Channel 12) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4257°N 77.3905°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

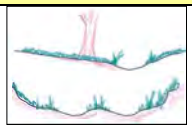
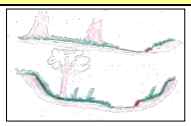
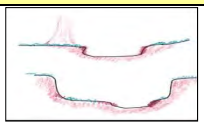
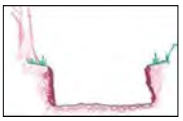
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		McHenry Twp.	5/24/23	Designated: CWF	Existing: HQ-CWF	AA-4	277 LF
Latitude	41.426020	Longitude	-77.390723	FGM Level 1 Channel Classification				

Evaluator(s)	Stream Name and Information	Notes: Intermittent stream with organic substrate.
Chris Frey	Channel 12 (UNT Benny's Run)	

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	17	0.85

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

	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	**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: The floodplain defined as 50 feet due to the small drainage size of the stream.

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

								Side Sub-Index	
Both Sides Combined	Condition Category								
	% Riparian Area:	100%	0%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	0	0	0	0	0		
	Total Sub-score:	**16.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

CI
0.80

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

1. Identify Condition Category areas along the floodplain using the descriptors above.
2. Estimate the % area within each condition category.
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below. Ensure the sums of % Riparian ZOI Blocks equal 100

								Side Sub-Index	
Both Sides Combined	% Riparian Area:	98%	2%	0%	0%	0%	0%	0.80	Side Sub-Index = SUM(%Areas*Scores)/20
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**15.68**	**0.36**	**0.00**	**0.00**	**0.00**	**0.00**		
	% Riparian Area:	0%	0%	0%	0%	0%	0%	0.00	CI = (Left Side CI + Right Side CI)/2 → CI: 0.80
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	Condition Category				Comments: N/A - Intermittent Stream.
	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 0 → CI: 0.00

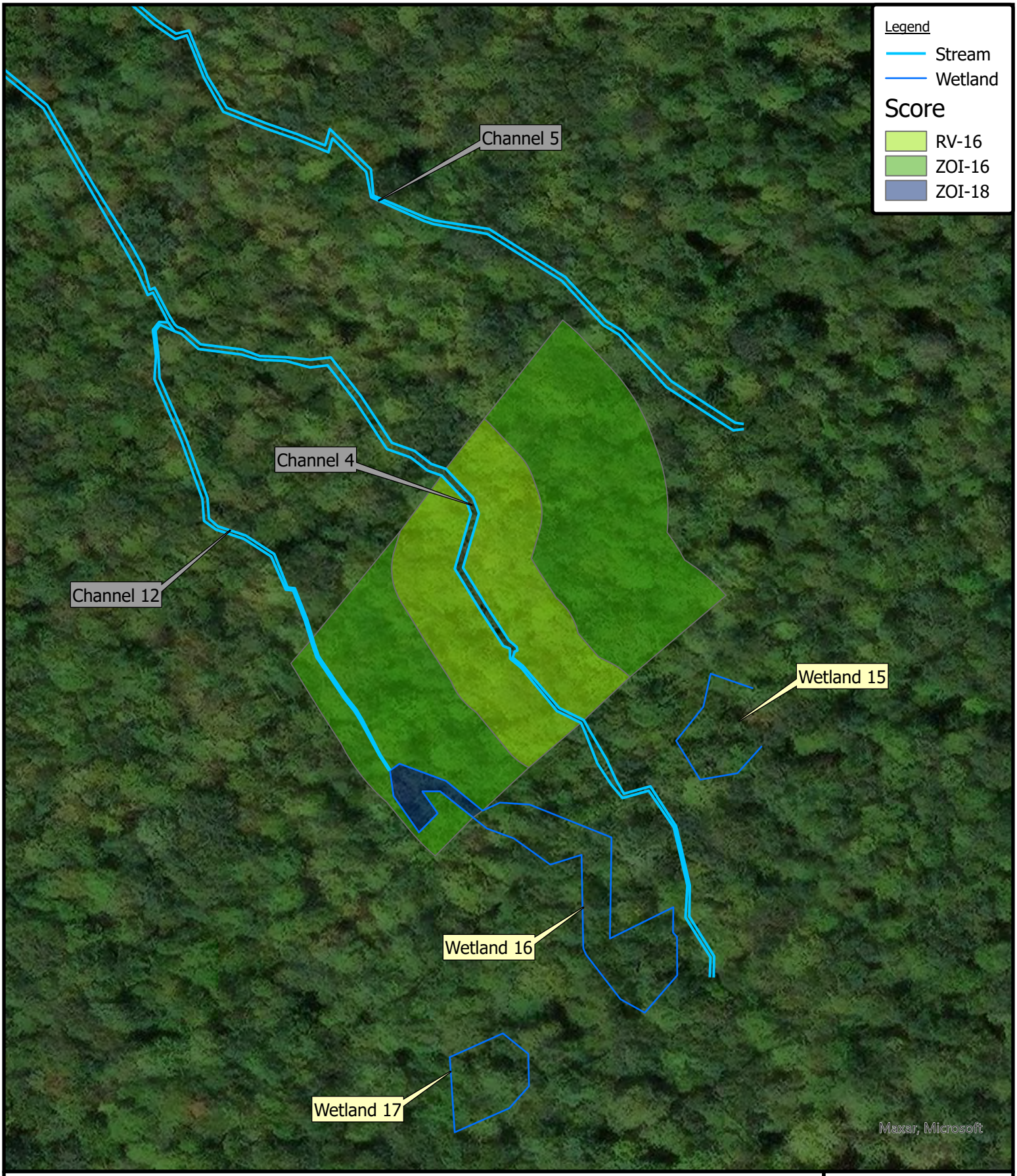
5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

	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	**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 16 → CI: 0.80

RIVERINE CONDITION INDEX (RCI)	RCI
NOTE: **The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/4** → **0.81**

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:



AA-5 (Channel 4) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4259°N 77.39°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:
PGE Pennsylvania General Energy Co., LLC

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

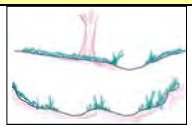
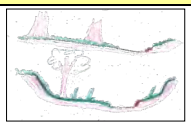
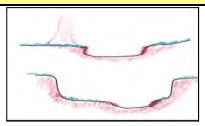
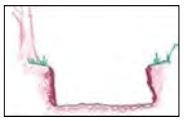
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		McHenry Twp.	6/23/22	Designated: CWF	Existing: HQ-CWF	AA-5	248
Latitude	41.427560	Longitude	-77.392277	FGM Level 1 Channel Classification				

Evaluator(s)	Stream Name and Information	Notes: Perennial stream with cobble and gravel substrate.
Brian Fleming/Chris Frey	Channel 4 (UNT Benny's Run)	

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: No incision or active erosion noted.

CI = (Score)/20		CI
SCORE	17	0.85

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

	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	**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: The floodplain defined as 50 feet due to the small drainage size of the stream. Riparian vegetation composed of forest community with ~65% canopy cover.

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

								Side Sub-Index
Both Sides Combined	Condition Category							
	% Riparian Area:	100%	0%	0%	0%	0%	0%	**0.80**
	Score:	16	0	0	0	0	0	
	Total Sub-score:	**16.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	
	Condition Category							
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**
	Score:	0	0	0	0	0	0	
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	

Side Sub-Index = SUM(%Areas*Scores)/20

CI = (Left Side CI + Right Side CI)/2

CI
0.80

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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	**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

								Side Sub-Index	
Both Sides Combined	% Riparian Area:	96%	4%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**15.36**	**0.72**	**0.00**	**0.00**	**0.00**	**0.00**		
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2** → **CI 0.80**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	Condition Category				Comments: Varied substrate sizes and water depth with significant woody and leafy debris.
	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 16** → **CI 0.80**

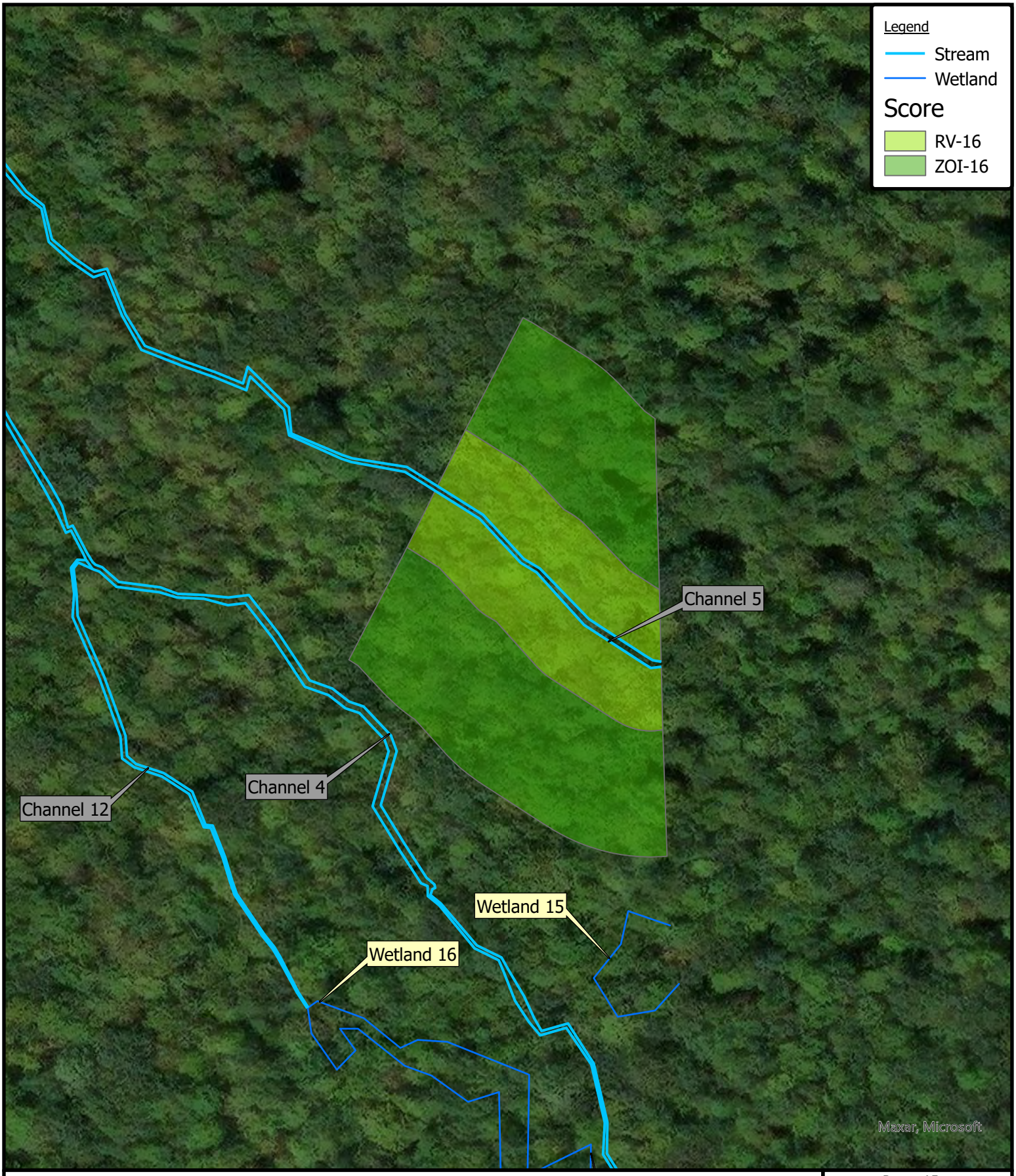
5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

	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	**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 16** → **CI 0.80**

RIVERINE CONDITION INDEX (RCI)	**RCI**
***NOTE:* The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/5** → **0.81**

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:



AA-6 (Channel 5) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4264°N 77.3898°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:
PGE Pennsylvania General Energy Co., LLC

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

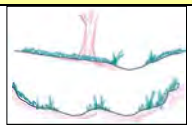
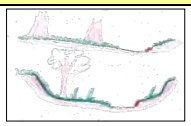
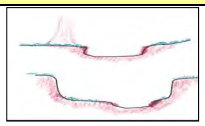
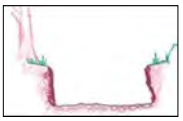
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		McHenry Twp.	6/23/22	Designated: CWF	Existing: HQ-CWF	AA-6	231
Latitude	41.427611	Longitude	-77.391877	FGM Level 1 Channel Classification				

Evaluator(s)	Stream Name and Information	Notes: Perennial stream with cobble and gravel substrate.
Brian Fleming/Chris Frey	Channel 5 (UNT Benny's Run)	

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: No incision or active erosion noted.

CI = (Score)/20		CI
SCORE	17	0.85

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

	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	**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: The floodplain defined as 50 feet due to the small drainage size of the stream. Riparian vegetation composed of forest community with ~65% canopy cover.

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

								Side Sub-Index	
	Condition Category								
Both Sides Combined	% Riparian Area:	100%	0%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	0	0	0	0	0		
	Total Sub-score:	**16.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

CI
0.80

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	**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

								Side Sub-Index	
Both Sides Combined	% Riparian Area:	100%	0%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	0	0	0	0	0		
	Total Sub-score:	**16.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2** — **CI** **0.80**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	Condition Category				Comments: Varied substrate sizes and water depth with significant woody and leafy debris.	
	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 16**	**0.80**

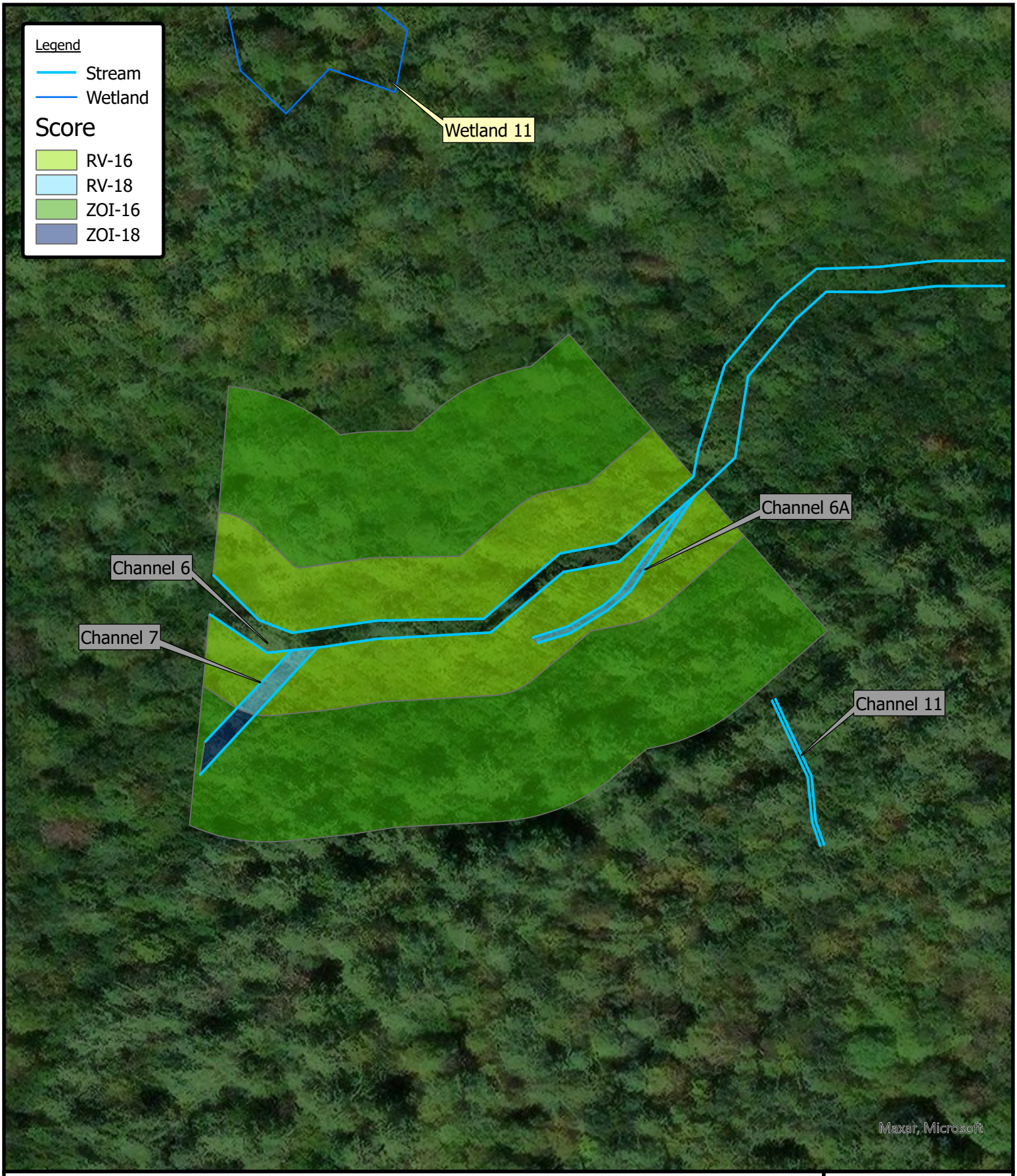
5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

	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	**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 16**	**0.80**

RIVERINE CONDITION INDEX (RCI)		**RCI**
NOTE: **The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/5**	**0.81**

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:



AA-7 (Channel 6) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4303°N 77.3908°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:
PGE Pennsylvania General Energy Co., LLC

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

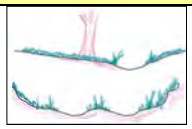
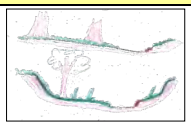
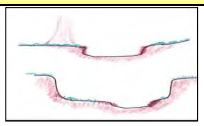
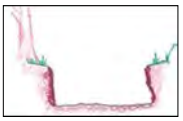
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		McHenry Twp.		Designated: CWF	Existing: HQ-CWF	AA-7	518 LF
Latitude	41.430490	**Longitude**	-77.390280	**FGM Level 1 Channel Classification**				

Evaluator(s)	Stream Name and Information	Notes: Perennial stream with cobble, gravel and boulder substrate.
Brian Fleming/Chris Frey	Channel 6 (Bark Cabin Run)	

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: Generally stable stream banks with many trees/boulders along banks.

CI = (Score)/20		CI
SCORE	17	0.85

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

	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	**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: Not a mapped floodplain. The floodplain considered approximately 50 feet due to the small drainage size of the stream. Floodplain is a forest community with ~65% canopy cover;

1. Identify Condition Category areas along the floodplain using the descriptors above.
2. Estimate the % area within each condition category.
3. Enter the % Riparian Area in in decimal form (0.00) and Score for each category in the blocks below. Ensure the sum of the % Riparian Area Blocks equal 100

	Condition Category							Side Sub-Index	
Both Sides Combined	% Riparian Area:	96%	4%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**15.36**	**0.72**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

CI
0.80

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	**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

								Side Sub-Index	
Both Sides Combined	Condition Category								
	% Riparian Area:	98%	2%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**15.68**	**0.36**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2** — **CI**
	Score:	0	0	0	0	0	0		**0.80**
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	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 16** — **0.80**

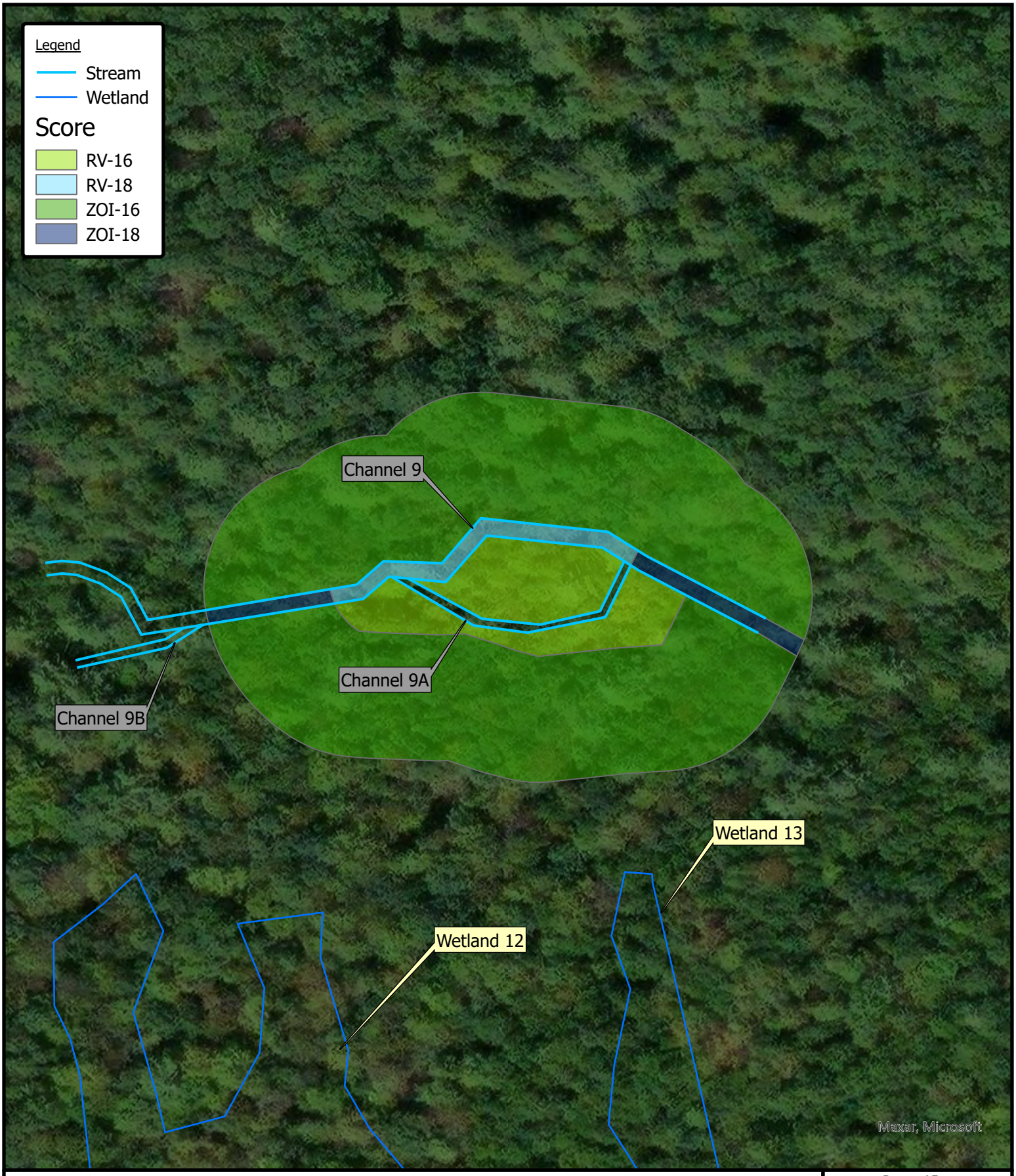
5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

	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	**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 16** — **0.80**

RIVERINE CONDITION INDEX (RCI)	**RCI**
***NOTE:* The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/5** — **0.81**

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:



AA-8 (Channel 9A) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4392°N 77.3895°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:
PGE Pennsylvania General Energy Co., LLC

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

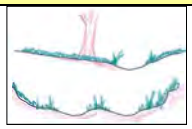
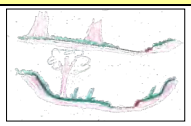
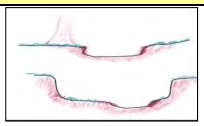
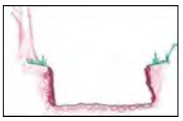
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		McHenry Twp.	6/30/22	Designated: CWF	Existing: HQ-CWF	AA-8	217 LF
Latitude	41.439199	Longitude	-77.389152	FGM Level 1 Channel Classification				

Evaluator(s)	Stream Name and Information	Notes: Ephemeral side-channel for Silver Branch
Brian Fleming/Chris Frey	Channel 9a (UNTSilver Branch)	

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	17	0.85

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

	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	**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: The floodplain defined as edge of Channel 9 and toe-of-slope south of the channel. Riparian vegetation comprised of forest community with ~65% canopy cover and Channel 9.

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

								Side Sub-Index	
Both Sides Combined	Condition Category								
	% Riparian Area:	82%	18%	0%	0%	0%	0%	**0.82**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**13.12**	**3.24**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

CI
0.82

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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: ZOI comprised of forest community with ~65% canopy cover and Channel 9.
	Optimal	Suboptimal		Marginal		Poor	
		High Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	Low Suboptimal: Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	High Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	Low Marginal: Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with	High Poor: Riparian ZOI area vegetation consists of lawns, 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.
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	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

								Side Sub-Index	
Both Sides Combined	Condition Category								
	% Riparian Area:	97%	3%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**15.52**	**0.54**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2** → **CI 0.80**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	Condition Category				Comments: N/A - Ephemeral Stream
	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 0** → **0.00**

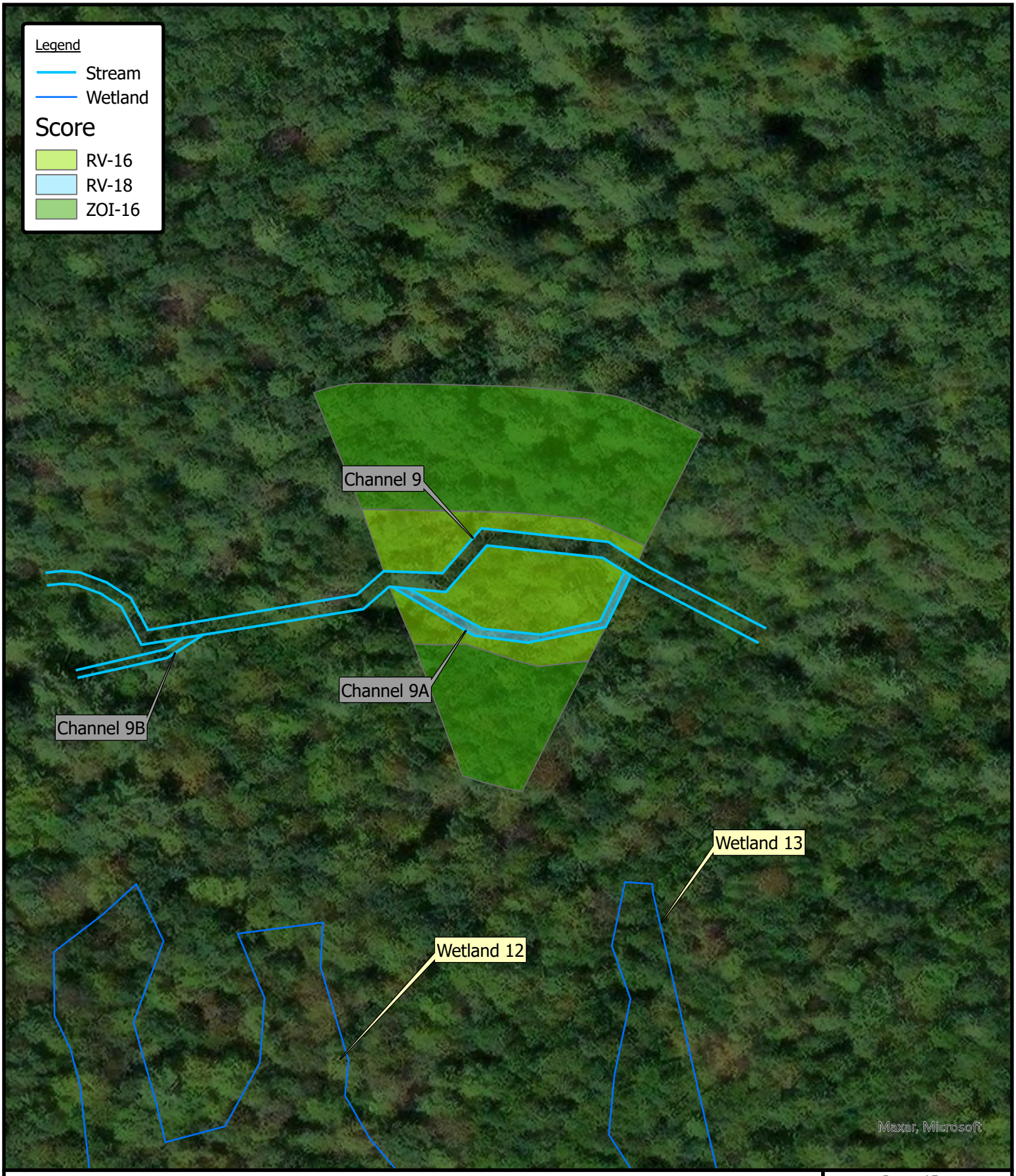
5. CHANNEL ALTERATION: Stream crossings, riprap, concrete, gabions, or concrete blocks, straightening of channel/channelization, embankments, spoil piles, constrictions, etc.

	Condition Category						Comments:
	Negligible	Minor		Moderate		Severe	
		Minor High: Less than or equal to 20% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not present	Minor Low: Greater than 20% and less than or equal to 40% of the stream reach is disrupted by any of the channel alterations listed above. Alteration or channelization present, usually adjacent to structures, (such as bridge abutments or culverts); evidence of past alteration, (i.e., channelization) may be present, but stream pattern and stability have recovered; recent alteration is not	Moderate High: Greater than 40% and less than or equal to 60% of reach is disrupted by any of the channel alterations listed above. If the stream has been channelized, normal stable stream meander pattern has not recovered.	Moderate Low: Greater than 60% and less than or equal to 80% of reach is disrupted by any of the channel alterations listed in the parameter guidelines. If the stream has been channelized, normal stable stream meander pattern has not recovered.		
Channel Alteration	Channel alterations listed above are absent in the SAR. The stream has unaltered pattern or has normalized.					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 16** → **0.80**

RIVERINE CONDITION INDEX (RCI)	RCI
NOTE: **The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/4** → **0.82**

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:



AA-9 (Channel 9) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4392°N 77.3895°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

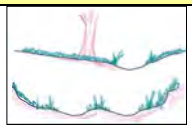
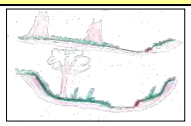
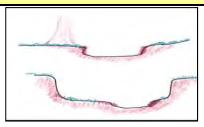
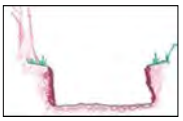
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		McHenry Twp.	6/30/22	Designated: CWF	Existing: HQ-CWF	AA-9	223 LF
Latitude	41.439237	Longitude	-77.390819	FGM Level 1 Channel Classification				

Evaluator(s)	Stream Name and Information	Notes: Perennial stream with cobble, gravel and boulder substrate.
Brian Fleming/Chris Frey	Channel 9 (Silver Branch)	

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	18	0.90

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

	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	**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: The floodplain confined to a well defined valley floor with an abrupt transition to 25-50% slopes. Riparian vegetation includes forest community with ~65% canopy cover and Channel 9A.

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

								Side Sub-Index	
Both Sides Combined	Condition Category								
	% Riparian Area:	92%	8%	0%	0%	0%	0%	**0.81**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	18	0	0	0	0		
	Total Sub-score:	**14.72**	**1.44**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2**
	Score:	0	0	0	0	0	0		**CI**
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		**0.81**

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

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

1. Identify Condition Category areas along the floodplain using the descriptors above.
2. Estimate the % area within each condition category.
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below. Ensure the sums of % Riparian ZOI Blocks equal 100

								Side Sub-Index	
Both Sides Combined	% Riparian Area:	100%	0%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	0	0	0	0	0		
	Total Sub-score:	**16.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2** → **CI 0.80**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	Condition Category				Comments: Varied substrate, water velocity and depths.
	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 17** → **CI 0.85**

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	**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 16** → **CI 0.80**

RIVERINE CONDITION INDEX (RCI)	**RCI**
***NOTE:* The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/5** → **0.83**

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:

AA-10 (Channel 10) Riparian Vegetation (RV) & Zone of Influence (ZOI) Map

McHenry Twp., Lycoming County, PA

N

Central Coordinates:
41.4478°N 77.3837°W

0 100 200Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Riverine Assessment Form 1

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

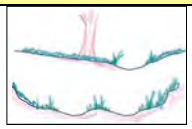
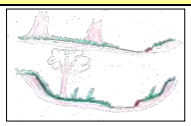
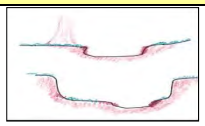
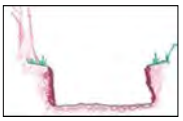
Pennsylvania Department of Environmental Protection

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
	Phase IV Pipeline		McHenry Twp.	6/30/22	Designated: CWF	Existing: HQ-CWF	AA-10	488 LF
Latitude	41.447846	Longitude	-77.384654	FGM Level 1 Channel Classification				

Evaluator(s)	Stream Name and Information	Notes: Perennial stream with cobble and gravel substrate.
Brian Fleming/Chris Frey	Channel 10 (UNT Silver Branch)	

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: No active erosion.

CI = (Score)/20		CI
SCORE	18	0.90

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

	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	**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: The floodplain defined as 50 feet due to the small drainage size of the stream. Riparian vegetation consists of forest canopy with ~65% canopy cover.

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

								Side Sub-Index	
	Condition Category								
Both Sides Combined	% Riparian Area:	100%	0%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	0	0	0	0	0		
	Total Sub-score:	**16.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2**
	Score:	0	0	0	0	0	0		
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

CI
0.80

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: ZOI comprised of forest community with ~65% canopy cover.
	Optimal	Suboptimal		Marginal		Poor	
Riparian ZOI	Riparian ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	**High Suboptimal:** Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.	**Low Suboptimal:** Riparian ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.	**High Marginal:** Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.	**Low Marginal:** Riparian ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with	**High Poor:** Riparian ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.	**Low Poor:** Riparian ZOI area consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.
		High	Low	High	Low	High	Low
SCORE	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6		5 4 3 2 1	

1. Identify Condition Category areas along the floodplain using the descriptors above.
2. Estimate the % area within each condition category.
3. Enter the % Riparian Area in decimal form (0.00) and Score for each category in the blocks below.

Ensure the sums of % Riparian ZOI Blocks equal 100

								Side Sub-Index	
Both Sides Combined	% Riparian Area:	100%	0%	0%	0%	0%	0%	**0.80**	**Side Sub-Index = SUM(%Areas*Scores)/20**
	Score:	16	0	0	0	0	0		
	Total Sub-score:	**16.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		
	Condition Category								
	% Riparian Area:	0%	0%	0%	0%	0%	0%	**0.00**	**CI = (Left Side CI + Right Side CI)/2** — **CI**
	Score:	0	0	0	0	0	0		**0.80**
	Total Sub-score:	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**		

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

	Condition Category				Comments: Varied and stable substrate sizes; varied water velocity and depth.	
	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 16**	**0.80**

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	**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 16** — **0.80**

RIVERINE CONDITION INDEX (RCI)	**RCI**
***NOTE:* The CIs and RCI should be rounded to 2 decimal places.**	**RCI = (Sum of all CI's)/5** — **0.82**

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:

Resource Identification and Wetland Delineation Report Phase IV Pipeline

Cummings and McHenry Townships
Lycoming County, PA

August 2023

Prepared for:

PGE Pennsylvania General Energy Co., LLC

Prepared by:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

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FIGURE(S)

Figure 1: Location and NWI Map for the Phase IV Pipeline
Figure 2: Soils and Project Map for the Phase IV Pipeline
Figure 3a: Resource Map for the Phase IV Pipeline
Figure 3b: Resource Map for the Phase IV Pipeline
Figure 3c: Resource Map for the Phase IV Pipeline

TABLE(S)

Table 1. Aquatic Resource Table

APPENDICES

Appendix A: Wetland Determination Data Form(s)
Appendix B: Photographs
Appendix C: Vegetation
Appendix D: Qualifications

SUMMARY

Beran Environmental Services, Inc. was retained by Pennsylvania General Energy Co., LLC to conduct a resource investigation of the proposed Phase IV natural gas pipeline in Cummings and McHenry Townships, Lycoming County, PA. Beran Environmental Services, Inc. conducted the field investigation on June 22, 23, 24, 29, and 30, 2022 and May 24, 2023.

The investigation area consisted of approximately 256 acres. Land use and land cover within the area of investigation consists of forest. Hydric soil map units are located within the investigation area. One (1) National Wetland Inventory (NWI) wetland is mapped within the investigation area. The field investigation identified seventeen (17) wetlands and fifteen (15) streams. The total wetland area delineated is 5.48 acres and the total stream length mapped is 4,668 feet.

1.0 METHODOLOGY

The investigation was initiated by reviewing available reference material in order to anticipate site conditions. Available references include the County Soil Survey, the National Wetlands Inventory (NWI) Map(s), the USGS Topographic Map(s), Lidar contours and aerial photography. Examination of these references aid in identification of the portions of the site that have the highest probability of containing wetlands. The onsite investigation was conducted to locate and identify wetlands not designated in the NWI and/or streams not shown on the USGS Topographic maps, and to field verify wetlands shown on the NWI and/or streams shown on the USGS Topographic maps.

The investigation area consisted of approximately 256 acres.

The wetland portion of the investigation was conducted according to methodologies outlined in the ACOE 1987 *Wetland Delineation Manual (Technical Report Y-87-1),* the ACOE *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0),* and/or the ACOE *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)*. This delineation procedure is based on three-parameters (vegetation, soils and hydrology). Positive wetland indicators of all three parameters are normally present in wetlands. Wetlands were delineated following the methodology for routine determinations. When wetlands were encountered, transitional features were identified. Site-specific indicators of transition from wetland to upland were examined in the field to locate the line corresponding to a jurisdictional boundary. Data including dominant vegetation, soil characteristics, and hydrology was collected at each observation point to determine which areas exhibited wetland indicators.

Plant wetland indicator statuses were determined using the U.S. Army Corps of Engineers: *The National Wetland Plant List* (Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List*: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X). The following abbreviations are used as descriptors for vegetative strata: (H) = Herbaceous, (S) = Shrub, (T) = Tree, and (V) = Vine.

The soil hue, value and chroma was determined using the Munsell Soil Color Charts.

Watercourses within the study area were mapped by locating stream centerline data and/or the ordinary high water mark. Stream widths displayed on mapping were based on visual estimates and/or measurements of the ordinary high water marks.

The locations of relevant features were surveyed using a Trimble GPS unit and/or a surveyor.

The resources and associated boundaries denoted in this report are subject to interpretation by various regulatory agencies. The Pennsylvania Department of Environmental Protection and/or the United States Army Corps of Engineers have regulatory authority over wetlands, watercourses, and their adjacent 100 year floodway. Prior to encroachment into these regulated areas, authorization must be obtained from the appropriate regulatory agency. All resource boundaries in this report are based on the documentation and observation of wetland field indicators and best professional judgment by Beran Environmental Services, Inc. following regulatory guidance unless otherwise stated.

2.0 SITE DESCRIPTION

The study area is located in Cummings and McHenry Townships, Lycoming County, Pennsylvania. Land use and land cover within the investigation area consists of forest.

Vegetative communities noted within the investigation area consist of an oak-maple-hemlock forest. For a complete listing of plant species identified on-site, please see Appendix C: Vegetation.

The investigation area generally drains north to Ott Fork, northwest to Benny's run and Bark Cabin Run, and east to Silver Branch. (Figure1).

3.0 SITE LOCATION

SITE:	Phase IV Pipeline
REVIEW ACRES:	230 acres
MUNICIPALITY:	Cummings and McHenry Townships
COUNTY:	Lycoming
STATE:	Pennsylvania
USGS QUADRANGLE:	Cammal
APPROX. CENTER LOCATION (NAD 83):	Latitude: 41.4282587 Longitude: -77.3899761
WATERSHED AND TITLE 25, CHAPTER 93 DESIGNATIONS:	Hackett Fork – EV Ott Fork – HQ-CWF Benny's Run – HQ-CWF Bark Cabin Run – HQ-CWF Silver Branch – HQ-CWF

4.0 REVIEW OF SECONDARY DATA

Secondary data for this delineation was obtained by reviewing the United States Geological Survey Topographic Map(s) (Cammal), Lycoming County Soil Survey, the National Wetland Inventory Map(s) (Cammal), and PAMAP Program, PADCNR, Bureau of Topographic and Survey, Lidar contours and NAIP USDA-FSA aerial photography (Lycoming County).

The Lycoming County Soil Survey map (Figure 2) identifies the following soil map units within the study area:

Soil Series	Symbol	Slope (%)	Drainage Class	Depth to seasonal water table	Hydric Soil
Clymer	CmB	3-8	Well drained	>80"	No

Clymer	CmC	8-15	Well drained	>80”	No
Clymer	CnB	0-8	Well drained	>80”	No
Clymer	CnD	8-25	Well drained	>80”	No
Cookport	CoB	3-8	Moderately well drained	15-21”	No
Cookport	CxB	0-8	Moderately well drained	15-21”	No
Cookport	CxD	8-25	Moderately well drained	15-21”	No
Dekalb	DkD	8-25	Well drained	>80”	No
Dekalb	DlE	25-80	Well drained	>80”	No
Leck kill	LkB	3-8	Well drained	>80”	No
Nolo	NoB	0-8	Poorly drained	0-6”	Yes

According to the NWI mapping, Wetland 2 and Wetland 3 are within a mapped NWI, PFO4E (palustrine forested, needle-leaved evergreen, seasonally flooded) wetland (Figure 1).

5.0 RESULTS OF THE FIELD INVESTIGATION

The field investigation identified seventeen (17) wetlands and fifteen (15) streams.

Wetland 1 (0.006 acres; 245 square feet) is a palustrine emergent (PEM) sloped wetland. This wetland had been previously marked and was surrounded by protective fencing at the time of investigation, so a proper plot could not be performed. Vegetation observed from outside of the fence consists of Canadian goldenrod (*Solidago canadensis*), Virginia strawberry (*Fragaria virginiana*), and Indian-hemp (*Apocynum cannabinum*). Hydrology indicators present included water-stained leaves. The surrounding upland is characterized by Wetland Determination Data Form P2.

Wetland 2 (1.047 acres; 45,589 square feet) is a palustrine forested (PFO) sloped/depressional wetland. Dominant vegetation at the sampling point (P1) consists of eastern hemlock (*Tsuga canadensis*), red maple (*Acer rubrum*), bearded shorthusk (*Brachyelytrum erectum*), fowl manna grass (*Glyceria striata*), and cinnamon fern (*Osmundastrum cinnamomeum*). The surrounding upland is characterized by Wetland Determination Data Forms P2 and P3.

Wetland 3 (0.272 acres; 11,862 square feet) is a palustrine forested (PFO) sloped/depressional wetland which abuts Channel 2. Dominant vegetation at the sampling point (P4) consists of red maple (*Acer rubrum*), fowl manna grass (*Glyceria striata*), and hooded blue violet (*Viola sororia*). The surrounding upland is characterized by Wetland Determination Data Form P5.

Wetland 4 (0.051 acres; 2,228 square feet) is a palustrine forested (PFO) sloped wetland which abuts Channel 2. Dominant vegetation at the sampling point (P6) consists of eastern hemlock (*Tsuga canadensis*) and New York fern (*Parathelypteris noveboracensis*). The surrounding upland is characterized by Wetland Determination Data Form P7.

Wetland 5 (0.127 acres; 5,528 square feet) is a palustrine forested (PFO) sloped wetland which is abuts Channel 3. Dominant vegetation at the sampling point (P8) consists of eastern hemlock (*Tsuga canadensis*), American golden-saxifrage (*Chrysosplenium americanum*), and New York fern (*Parathelypteris noveboracensis*). The surrounding upland is characterized by Wetland Determination Data Form P7.

Wetland 6 (0.278 acres; 12,171 square feet) and Wetland 7 (0.34 acres; 14,805 square feet) are palustrine forested (PFO) sloped wetlands. The boundary for Wetland 7 is open-ended and continues to the west. Dominant vegetation at the sampling point (P9) consists of greater bladder sedge (*Carex intumescens*) and New York fern (*Parathelypteris noveboracensis*). These wetland boundaries contain numerous upland inclusions with Japanese barberry (*Berberis thunbergii*) and Hay-scented fern (*Dennstaedtia punctilobula*). The surrounding upland is characterized by Wetland Determination Data Form P10.

Wetland 8 (0.043 acres; 1,866 square feet) is a palustrine forested (PFO) sloped/depressional wetland. Dominant vegetation at the sampling point (P11) consists of eastern hemlock (*Tsuga canadensis*). The surrounding upland is characterized by Wetland Determination Data Form P10.

Wetland 9 (0.189 acres; 8,214 square feet), Wetland 10 (0.070 acres; 3,033 square feet), and Wetland 11 (0.406 acres; 17,664 square feet) are palustrine forested (PFO) sloped wetlands, which abut Channel 8. Dominant vegetation at the sampling point (P12) consists of eastern hemlock (*Tsuga canadensis*) and New York fern (*Parathelypteris noveboracensis*). The surrounding upland is characterized by Wetland Determination Data Form P13.

Wetland 12 (1.5 acres; 65,334 square feet) and Wetland 13 (0.512 acres; 22,323 square feet) are palustrine forested (PFO) sloped wetlands. Dominant vegetation at the sampling point (P15) consists of eastern hemlock (*Tsuga canadensis*), red maple (*Acer rubrum*), and New York fern (*Parathelypteris noveboracensis*). The surrounding upland is characterized by Wetland Determination Data Form P16.

Wetland 14 (0.257 acres; 11,201 square feet) is a palustrine forested (PFO) sloped wetland. Dominant vegetation at the sampling point (P18) includes eastern hemlock (*Tsuga canadensis*) and American golden-saxifrage (*Chrysosplenium americanum*). The surrounding upland is characterized by Wetland Determination Data Form P17.

Wetland 15 (0.08 acres; 3,648 square feet) is a palustrine forested (PFO) sloped wetland. Dominant vegetation at the sampling point (P20) includes eastern hemlock (*Tsuga canadensis*), drooping sedge (*Carex prasina*), and American golden-saxifrage (*Chrysosplenium americanum*). The surrounding upland is characterized by Wetland Determination Data Form P21.

Wetland 16 (0.22 acres; 9,595 square feet) and Wetland 17 (0.078 acres; 3,386 square feet) are palustrine forested (PFO) sloped wetlands. Dominant vegetation at the sampling points (P22 & P23) includes eastern hemlock (*Tsuga canadensis*), green ash (*Fraxinus pensylvanica*), and drooping sedge (*Carex prasina*). The surrounding upland is characterized by Wetland Determination Data Form P21.

Channel 1 (109 linear feet) is an ephemeral stream with predominantly cobble and gravel substrate.

Channel 2 (318 linear feet) is an intermittent stream with predominantly cobble and gravel substrate. This stream originates within Wetland 3.

Channel 3 (284 linear feet) is a perennial stream with predominantly cobble and sand substrate.

Channel 4 (496 linear feet) and Channel 5 (302 linear feet) are perennial streams with predominantly cobble and gravel substrate.

Channel 6 (440 linear feet) and Channel 7 (119 linear feet) are perennial streams with predominantly cobble, boulder, and gravel substrate.

Channel 6a (170 linear feet) is an intermittent stream with predominantly cobble, boulder, and gravel substrate. This stream acts as a side channel for overflow of Channel 6.

Channel 8 (434 linear feet) is an intermittent stream with predominantly mud substrate. This stream outlets from Wetland 9.

Channel 9 (634 linear feet) is a perennial stream with cobble, gravel, and boulder substrate.

Channel 9a (217 linear feet) is an ephemeral side channel with predominantly boulder substrate.

Channel 9b (99 linear feet) is a perennial side channel with predominantly cobble and gravel substrate.

Channel 10 (488 linear feet) is a perennial stream with predominantly cobble and gravel substrate.

Channel 11 (125 linear feet) is an ephemeral stream with predominantly cobble substrate.

Channel 12 (433 linear feet) is an intermittent stream with predominantly organic substrate.

6.0 REFERENCES

Gleason, Henry A. and Cronquist, Arthur *Manual of Vascular Plants of Northeastern United States and Adjacent Canada Second Edition.* The New York Botanical Garden Press. Bronx, NY. 1991.

Holmgren, Noel A. *Illustrated Companion to Gleason & Cronquist's Manual: Illustrations of the Vascular Plants of Northeastern United States and Adjacent Canada.* The New York Botanical Garden Press. Bronx, NY. 1998.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List*: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X
Munsell Soil Color Charts, Munsell Color, 2000 Revised Edition

Munsell Soil Color Charts, Munsell Color, 2000 Revised Edition

Newcomb, Lawrence. *Newcomb's Wildflower Guide*. Little, Brown and Company. Boston, MA. 1977.

Petrides, George A. *A Field Guide to Trees and Shrubs*. Houghton Mifflin Co. Boston, MA. 1972.

Rhoads, Ann Fowler and Block, Timothy A. *The Plants of Pennsylvania: An Illustrated Manual Second Edition*. University of Pennsylvania Press. Philadelphia, PA. 2007.

Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. (editors). *Field Book for Describing and Sampling Soils, Version 2.0*. Natural Resources Conservation Service, National Soil Survey Center. Lincoln, NE. 2002.

U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0*, ERDC/EL TR-12-9.

U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Version 2.0*, ERDC/EL TR-12-1.

Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

FIGURES

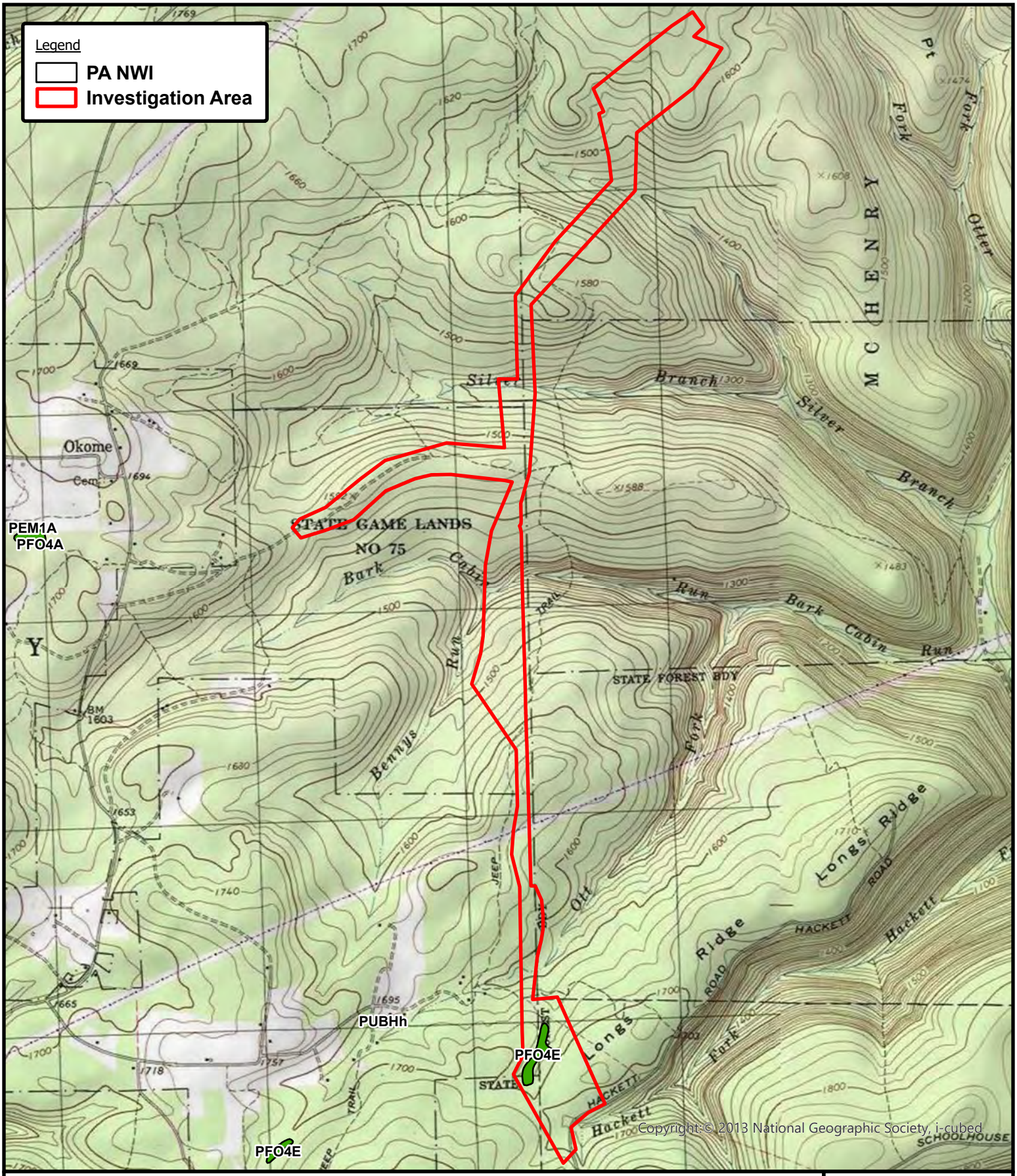


Figure 1: Location & NWI Map for the Phase IV Pipeline

Cummings & McHenry Twp, Lycoming County, PA

N

Central Coordinates:
41.4305°N 77.3903°W

0 2,000 4,000Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

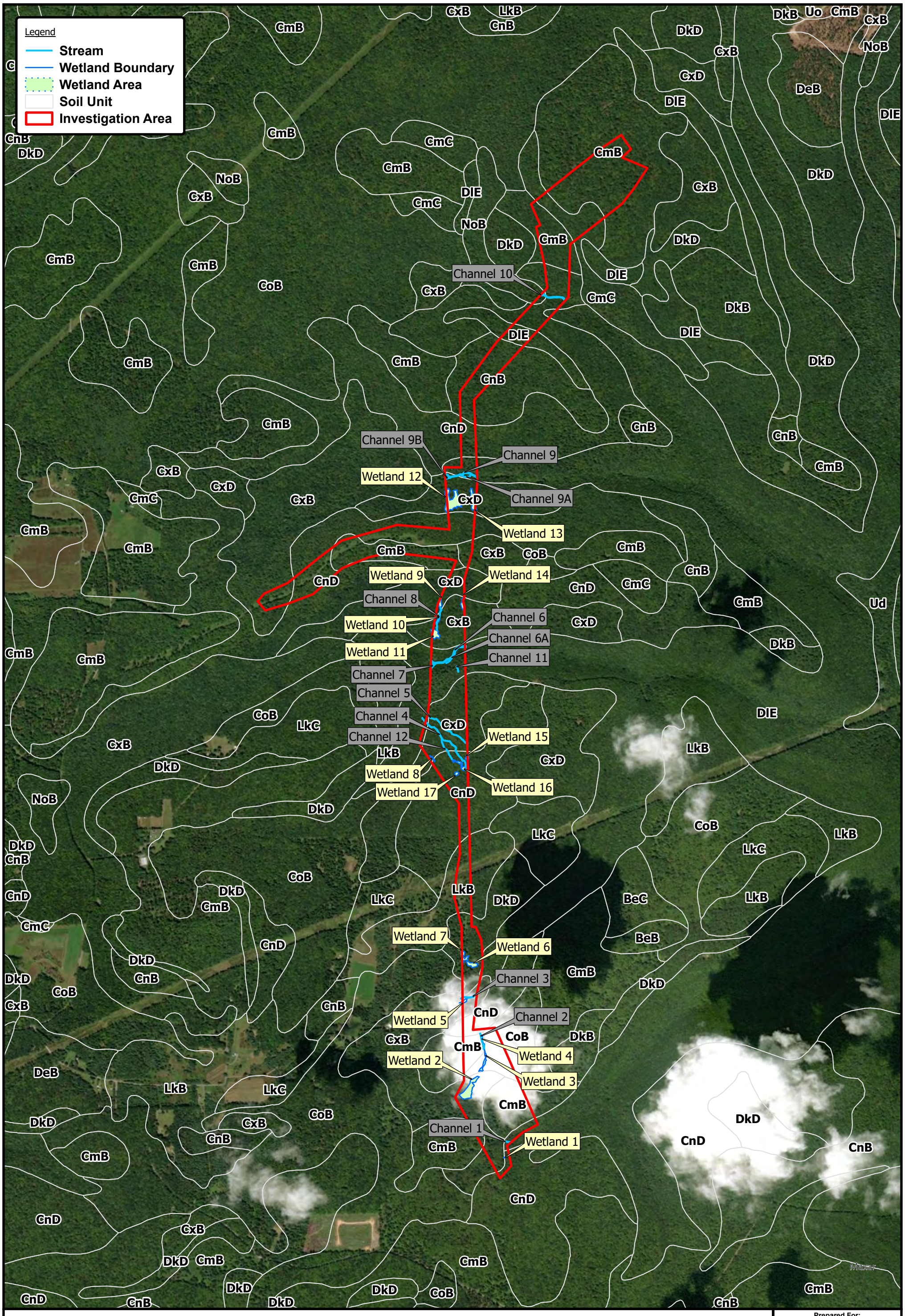


Figure 2: Soils & Project Map for the Phase IV Pipeline

Cummings & McHenry Twp, Lycoming County, PA

Central Coordinates:
41.4305°N 77.3903°W

0 2,000 4,000Feet

USGS Quadrangle
Cammal

Prepared For:
PGE Pennsylvania General Energy Co., LLC

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Legend

- Data Plot
- 2ft Contours
- Stream
- Wetland Boundary
- Wetland Area
- Investigation Area

Wetland 7
P10
P9
Wetland 6
Channel 3
P8
Wetland 5
Wetland 4
P6
P7
Channel 2
Wetland 3
P4
P5
P3
Wetland 2
P1
P2
Channel 1
Wetland 1

Maxar, Microsoft

Figure 3a: Resource Map for the Phase IV Pipeline

Cummings & McHenry Twp, Lycoming County, PA

N

Central Coordinates:
41.4112°N 77.3886°W

0 300 600Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

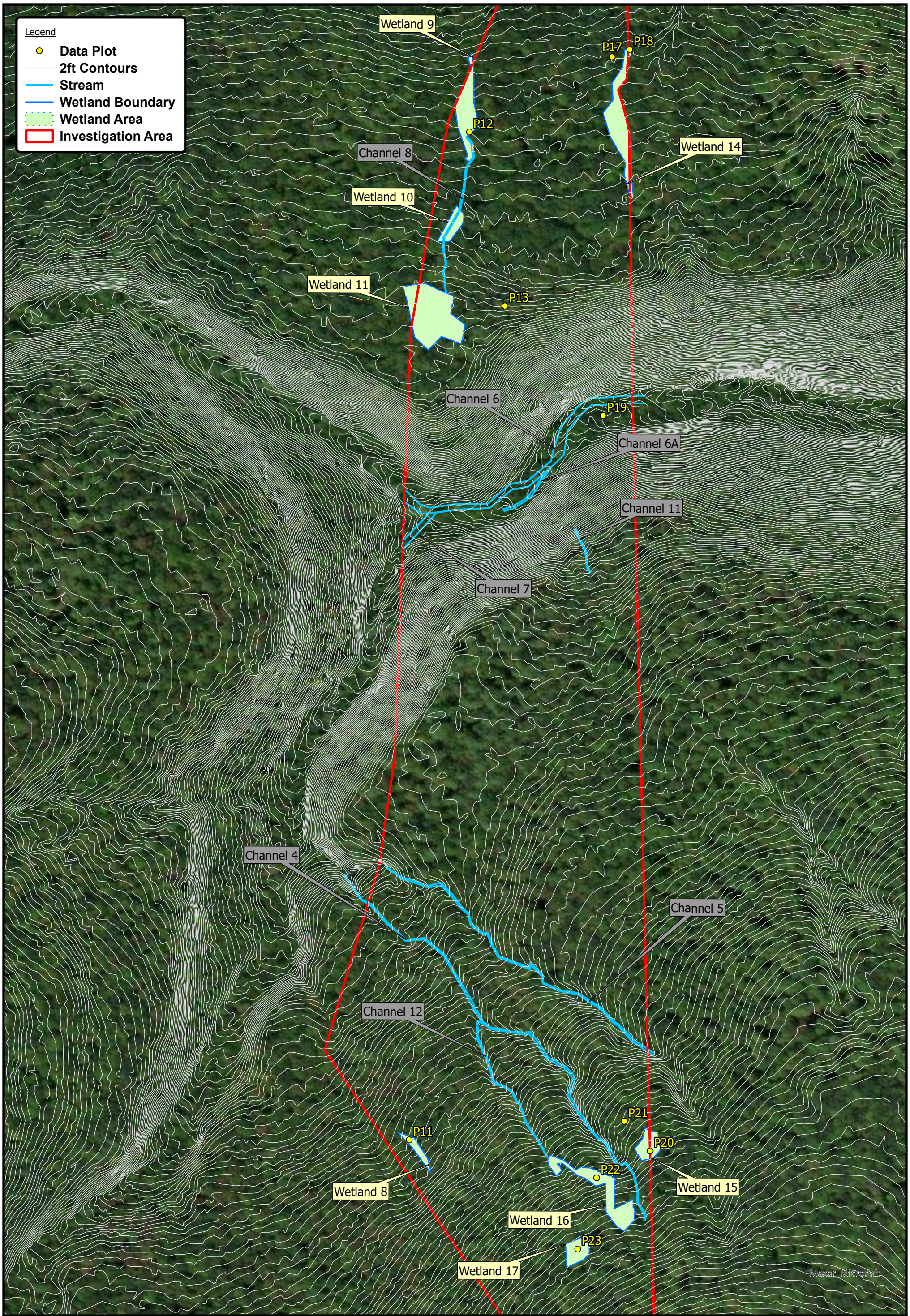


Figure 3b: Resource Map for the Phase IV Pipeline

Cummings & McHenry Twp, Lycoming County, PA

N

Central Coordinates:
41.4291°N 77.3912°W

0 300 600Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

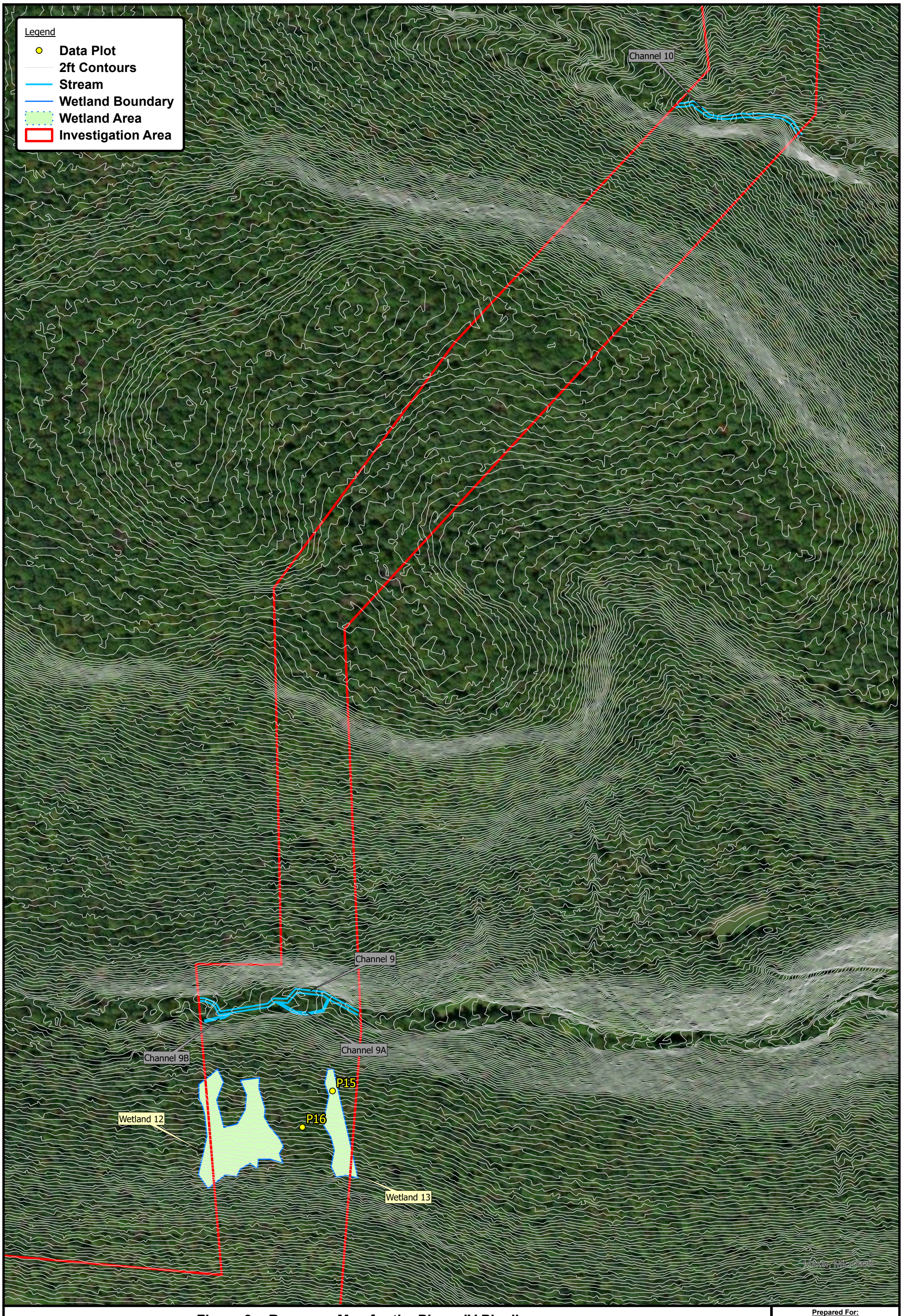


Figure 3c: Resource Map for the Phase IV Pipeline

Cummings & McHenry Twp, Lycoming County, PA

N

Central Coordinates:
41.4425°N 77.3876°W

0 400 800Feet

USGS Quadrangle
Cammal

Prepared For:

PGE Pennsylvania General Energy Co., LLC

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Table 1. Aquatic Resource Table

Waters Name	Cowardin Code	HGM Code	Estimated Amt. of Aquatic Resource Delineated		Waters Type [1]	Latitude (dd NAD 83)	Longitude (dd NAD 83)	Local Waterway Name	Exceptional Value Wetland [2] (Y/N)	Stream Type (P-Perennial, I-Intermittent or E-Ephemeral)	Avg. Stream Width (ft.)	Chapter 93 Classification [3]	Approved Trout Waters [4] (Y/N)	Wild Trout Waters [5] (Y/N)	Class A Wild Trout Waters [6] (Y/N)
			Wetland Area (acres)	Stream Length (ft.)											
Wetland 1	PEM	SLOPE	0.006	--	ISOLATE	41.4064267	-77.386984	Wetland 1	N	--	--	--	--	--	--
Wetland 2	PFO	SLOPE/DEPRESS	1.047	--	ISOLATE	41.409639	-77.389305	Wetland 2	N	--	--	--	--	--	--
Wetland 3	PFO	SLOPE/DEPRESS	0.272	--	RPWWD	41.411178	-77.388320	Wetland 3	Y	--	--	--	--	--	--
Wetland 4	PFO	SLOPE	0.051	--	RPWWD	41.412229	-77.388454	Wetland 4	Y	--	--	--	--	--	--
Wetland 5	PFO	SLOPE	0.127	--	RPWWD	41.413922	-77.389577	Wetland 5	Y	--	--	--	--	--	--
Wetland 6	PFO	SLOPE	0.278	--	ISOLATE	41.415733	-77.389232	Wetland 6	N	--	--	--	--	--	--
Wetland 7	PFO	SLOPE	0.34	--	ISOLATE	41.416067	-77.389625	Wetland 7	N	--	--	--	--	--	--
Wetland 8	PFO	SLOPE/DEPRESS	0.043	--	ISOLATE	41.425588	-77.391585	Wetland 8	N	--	--	--	--	--	--
Wetland 9	PFO	SLOPE	0.189	--	RPWWD	41.433028	-77.391105	Wetland 9	Y	--	--	--	--	--	--
Wetland 10	PFO	SLOPE	0.07	--	RPWWD	41.432203	-77.391245	Wetland 10	Y	--	--	--	--	--	--
Wetland 11	PFO	SLOPE	0.406	--	RPWWD	41.431567	-77.391440	Wetland 11	Y	--	--	--	--	--	--
Wetland 12	PFO	SLOPE	1.5	--	ISOLATE	41.437942	-77.390353	Wetland 12	N	--	--	--	--	--	--
Wetland 13	PFO	SLOPE	0.512	--	ISOLATE	41.438018	-77.389026	Wetland 13	N	--	--	--	--	--	--
Wetland 14	PFO	SLOPE	0.257	--	DELINEATE	41.432943	-77.389636	Wetland 14	Y	--	--	--	--	--	--
Wetland 15	PFO	SLOPE	0.084	--	ISOLATE	41.425614	-77.389373	Wetland 15	N	--	--	--	--	--	--
Wetland 16	PFO	SLOPE	0.22	--	RPWWD	41.425400	-77.389920	Wetland 16	Y	--	--	--	--	--	--
Wetland 17	PFO	SLOPE	0.078	--	ISOLATE	41.424855	-77.390056	Wetland 17	N	--	--	--	--	--	--
Channel 1	--	--	--	109	NRPW	41.407196	-77.386949	Channel 1	--	E	2	EV	N	Y	N
Channel 2	R4	--	--	318	RPW	41.412411	-77.388551	Channel 2	--	I	2	HQ-CWF	N	Y	N
Channel 3	R3	--	--	284	RPW	41.414048	-77.389819	Channel 3	--	P	8	HQ-CWF	N	Y	N
Channel 4	R3	--	--	496	RPW	41.427560	-77.392277	Channel 4	--	P	4	HQ-CWF	N	Y	N
Channel 5	R3	--	--	302	RPW	41.427611	-77.391877	Channel 5	--	P	4	HQ-CWF	N	Y	N
Channel 6	R3	--	--	440	RPW	41.430490	-77.390280	Channel 6	--	P	12	HQ-CWF	N	Y	N
Channel 6a	R4	--	--	170	RPW	41.430463	-77.390313	Channel 6a	--	I	5	HQ-CWF	N	Y	N
Channel 7	R3	--	--	119	RPW	41.430114	-77.391437	Channel 7	--	P	12	HQ-CWF	N	Y	N
Channel 8	R4	--	--	434	RPW	41.432841	-77.391102	Channel 8	--	I	3	HQ-CWF	N	Y	N
Channel 9	R3	--	--	634	RPW	41.439237	-77.390819	Channel 9	--	P	10	HQ-CWF	N	Y	N
Channel 9a	--	--	--	217	NRPW	41.439199	-77.389152	Channel 9a	--	E	8	HQ-CWF	N	Y	N
Channel 9b	R3	--	--	99	RPW	41.439088	-77.390398	Channel 9b	--	P	6	HQ-CWF	N	Y	N
Channel 10	R3	--	--	488	RPW	41.447846	-77.384654	Channel 10	--	P	12	HQ-CWF	N	Y	N
Channel 11	--	--	--	125	NRPW	41.429877	-77.389992	Channel 11	--	E	4	HQ-CWF	N	Y	N
Channel 12	R4	--	--	433	RPW	41.426020	-77.390723	Channel 12	--	I	4	HQ-CWF	N	Y	N

1 Jurisdicational Status is the opinion of the investigator and was not determined by PADEP and/or USACE

2 PA Code Title 25 Chapter 105 Section 17. Wetlands

3 PA Code Title 25 Chapter 93 Section 9

4 http://www.fish.state.pa.us/fishpub/summary/troutwaters.html

5 http://www.fish.state.pa.us/trout_repro.pdf

6 http://www.fish.state.pa.us/classa.pdf

Waters Type	DESCRIPTION
DELINEATE	Delineation only
TNW	TNWs, including territorial seas
TNWW	Wetlands adjacent to TNWs
RPW	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs
RPWWD	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
RPWWN	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
NRPW	Non-RPWs that flow directly or indirectly into TNWs
NRPWW	Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
ISOLATE	Isolated (interstate or intrastate) waters, including isolated wetlands
UPLAND	Uplands
TNWRPW	Tributary consisting of both RPWs and non-RPWs

HGM Code	Name
DEPRESS	Depressional
ESTUARINEF	Estuarine Fringed
LACUSTRINF	Lacustrine Fringe
MINSOILFLT	Mineral Soil Flats
ORGSOILFLT	Organic Soil Flats
RIVERINE	Riverine
SLOPE	Slope

APPENDIX A: WETLAND DETERMINATION DATA FORM

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P1

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4093265 Long: -77.3892378 Datum: NAD83

Soil Map Unit Name: CxB NWI classification: PFO4E

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 5

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P1

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	45	Yes	FAC
2. Acer rubrum	25	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Brachyelytrum erectum	5	Yes	FACU
2. Glyceria striata	5	Yes	OBL
3. Osmundastrum cinnamomeum	5	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

SOIL Sampling Point: P1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-3	10YR 3/1	100					Loamy/Clayey	
3-14	10YR 7/1	60	10YR 6/8	40	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P2

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4092906 Long: -77.3891755 Datum: NAD83

Soil Map Unit Name: CxB NWI classification: *PFO4E

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

*Plot located within a mapped NWI boundary; however, this plot documents the upland border of the field verified wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P2

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus strobus	65	Yes	FACU
2. Acer rubrum	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1. Pinus strobus	10	Yes	FACU
2. Berberis thunbergii	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 5-Feet)			
1. Vaccinium angustifolium	45	Yes	FACU
2. Pinus strobus	5	No	FACU
3. Trientalis borealis	5	No	FAC
4. Brachyelytrum erectum	5	No	FACU
5. Mitchella repens	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (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	140	x 4 =	560
UPL species	0	x 5 =	0
Column Totals:	165 (A)		635 (B)

Prevalence Index = B/A = 3.85

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5								Organic
5-8	10YR 6/2	90	10YR 6/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
8-12	10YR 6/4	70	10YR 6/6	20	C	M	Loamy/Clayey	Distinct redox concentrations
			10YR 5/8	10	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P3

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4092906 Long: -77.3891755 Datum: NAD83

Soil Map Unit Name: CxB NWI classification: *PFO4E

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

*Plot located within a mapped NWI boundary; however, this plot documents the upland border of the field verified wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P3

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus strobus	90	Yes	FACU
2. Acer rubrum	5	No	FAC
3.			
4.			
5.			
6.			
7.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1. Pinus strobus	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 5-Feet)			
1. Dennstaedtia punctilobula	95	Yes	FACU
2. Trientalis borealis	3	No	FAC
3. Vaccinium angustifolium	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	103 = Total Cover		
50% of total cover: 51.5	20% of total cover: 20.6		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 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	8	x 3 =	24
FACU species	195	x 4 =	780
UPL species	0	x 5 =	0
Column Totals:	203 (A)		804 (B)

Prevalence Index = B/A = 3.96

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-6	7.5YR 4/4	100					Loamy/Clayey	
6-16	10YR 5/8	95	10YR 5/6	5	C	M	Loamy/Clayey	Distinct redox concentration

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P4

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: Cummings

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR or MLRA): LRR N Lat: 41.4106982 Long: -77.3884989 Datum: NAD83

Soil Map Unit Name: CoB NWI classification: PFO4E

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X No _____ Depth (inches): 1.5

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P4

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	35	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Glyceria striata	20	Yes	OBL
2. Viola sororia	15	Yes	FAC
3. Lycopus uniflorus	5	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL Sampling Point: P4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

Hydric soils assumed due to inundation and dominance of hydrophytic vegetation.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P5

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: Cummings

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4107797 Long: -77.3883417 Datum: NAD83

Soil Map Unit Name: CoB NWI classification: *PFO4E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

*Plot located within a mapped NWI boundary; however, this plot documents the upland border of the field verified wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P5

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus strobus	90	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1. Pinus strobus	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Herb Stratum (Plot size: 5-Feet)			
1. Dennstaedtia punctilobula	95	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 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	190	x 4 =	760
UPL species	0	x 5 =	0
Column Totals:	190 (A)		760 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-6	7.5YR 4/4	100					Loamy/Clayey	
6-16	10YR 5/8	95	10YR 5/6	5	C	M	Loamy/Clayey	Distinct redox concentration

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P6

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: Cummings

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4122831 Long: -77.3884704 Datum: NAD83

Soil Map Unit Name: CmB NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P6

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	45	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		

Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 5-Feet)			
1. Parathelypteris noveboracensis	70	Yes	FAC
2. Brachyelytrum erectum	5	No	FACU
3. Glyceria striata	5	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		

Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL Sampling Point: P6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-3	10YR 3/1	100					Loamy/Clayey	
3-14	10YR 7/1	60	10YR 6/8	40	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P7

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: Cummings

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4122424 Long: -77.3882943 Datum: NAD83

Soil Map Unit Name: CmB NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P7

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus strobus	90	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Dennstaedtia punctilobula	95	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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 (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	185	x 4 =	740
UPL species	0	x 5 =	0
Column Totals:	185 (A)		740 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-6	7.5YR 4/4	100					Loamy/Clayey	
6-16	10YR 5/8	95	10YR 5/6	5	C	M	Loamy/Clayey	Distinct redox concentration

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P8

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4139626 Long: -77.3894618 Datum: NAD83

Soil Map Unit Name: CxB NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X No _____ Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

Episaturation

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P8

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Chrysosplenium americanum	60	Yes	OBL
2. Viola sp.	10	No	---
3. Parathelypteris noveboracensis	40	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL Sampling Point: P8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/1	90	10YR 5/8	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P9

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 4

Subregion (LRR or MLRA): LRR N Lat: 41.4158078 Long: -77.3893531 Datum: NAD83

Soil Map Unit Name: DkD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P9

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: ____	20% of total cover: ____		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: ____	20% of total cover: ____		
Herb Stratum (Plot size: 5-Feet)			
1. Carex intumescens	50	Yes	FACW
2. Parathelypteris noveboracensis	20	Yes	FAC
3. Viola sp.	5	No	---
4. Berberis thunbergii	5	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: ____	20% of 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ____

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

SOIL Sampling Point: P9

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	90	10YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
4-10	7.5YR 3/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P10

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4163135 Long: -77.3894101 Datum: NAD83

Soil Map Unit Name: DkD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P10

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	30	Yes	FACU
2. Carya ovata	35	Yes	FACU
3. Acer saccharum	15	No	FACU
4.			
5.			
6.			
7.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Dennstaedtia punctilobula	20	Yes	FACU
2. Berberis thunbergii	5	No	FACU
3. Dryopteris sp.	5	No	---
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 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	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	105 (A)		420 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P10

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-5	10YR 3/3	100					Loamy/Clayey	
5-12	7.5YR 5/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-23-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P11

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 41.4257176 Long: -77.3916623 Datum: NAD83

Soil Map Unit Name: CxD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X No _____ Depth (inches): 0.25

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P11

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

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

25% coverage of Fraxinus sp. was also noted, but was not included due to death and defoliation of those present.

SOIL

Sampling Point: P11

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	5YR 2.5/2	100					Loamy/Clayey	
3-10	5YR 4/1	90	5YR 4/3	10	C	M	Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-24-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P12

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 6

Subregion (LRR or MLRA): LRR N Lat: 41.4328755 Long: -77.3910823 Datum: NAD83

Soil Map Unit Name: CxD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	No _____	Depth (inches): 0.25
Water Table Present?	Yes X	No _____	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

Inundation found in pockets.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P12

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	25	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Parathelypteris noveboracensis	10	Yes	FAC
2. Viola sp.	2	No	---
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	12 = Total Cover		
50% of total cover: 6	20% of total cover: 2.4		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL Sampling Point: P12

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-10	10YR 2/2	95	7.5YR 3/3	5	C	M	Loamy/Clayey	
10-16	10YR 4/2	90	7.5YR 5/8	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-24-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P13

Investigator(s): B. Fleming, C. Frey, T. Maxwell, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 8

Subregion (LRR or MLRA): LRR N Lat: 41.4316299°N Long: -77.3907421 Datum: NAD83

Soil Map Unit Name: CxD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P13

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	20	Yes	FACU
2. Pinus strobus	20	Yes	FACU
3. Quercus alba	20	Yes	FACU
4. Acer rubrum	10	No	FAC
5.			
6.			
7.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Medeola virginiana	5	Yes	FAC
2. Acer rubrum	10	Yes	FAC
3. Tsuga canadensis	2	No	FACU
4. Pinus strobus	3	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (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	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	90 (A)		335 (B)

Prevalence Index = B/A = 3.72

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P13

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1								Organic
1-4	10YR 2/2	100					Loamy/Clayey	
4-12	10YR 5/8	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-29-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P14

Investigator(s): B. Fleming, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 8

Subregion (LRR or MLRA): LRR N Lat: 41.4523306 Long: -77.3818615 Datum: NAD83

Soil Map Unit Name: CmB NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P14

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	25	Yes	FAC
2. Quercus alba	15	Yes	FACU
3. Quercus montana	10	Yes	UPL
4.			
5.			
6.			
7.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1. Kalmia latifolia	60	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum (Plot size: 5-Feet)			
1. Vaccinium angustifolium	25	Yes	FACU
2. Gaultheria procumbens	30	Yes	FACU
3. Pteridium aquilinum	20	Yes	FACU
4. Kalmia latifolia	20	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 12.5% (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	170	x 4 =	680
UPL species	10	x 5 =	50
Column Totals:	205 (A)		805 (B)

Prevalence Index = B/A = 3.93

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P14

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-4	10YR 2/2	100					Loamy/Clayey	
4-12	10YR 3/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-30-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P15

Investigator(s): B. Fleming, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 41.4383460 Long: -77.3890931 Datum: NAD83

Soil Map Unit Name: CxD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P15

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	60	Yes	FAC
2. Acer rubrum	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Parathelypteris novaboracensis	10	Yes	FAC
2. Acer rubrum	3	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	13 = Total Cover		
50% of total cover: 6.5	20% of total cover: 2.6		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover:	20% of 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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL Sampling Point: P15

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-4	10YR 2/1	100					Loamy/Clayey	
4-12	10YR 6/2	75	10YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 6-30-2022

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P16

Investigator(s): B. Fleming, R. Kocis Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): _____ Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 41.4379973 Long: -77.3894797 Datum: NAD83

Soil Map Unit Name: CxD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P16

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	45	Yes	FACU
2. Acer rubrum	20	Yes	FAC
3. Betula alleghaniensis	10	Yes	FAC
4.			
5.			
6.			
7.			
	75	= Total Cover	
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0	= Total Cover	
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
50% of total cover:	20% of 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	75 (A)		270 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P16

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2								Organic
2-4	10YR 2/1	100					Loamy/Clayey	
4-6	10YR 3/3	100					Loamy/Clayey	
6-12	10YR 6/6	90	7.5YR 6/8	10	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 5-23-2023

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P17

Investigator(s): C. Frey Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): hillslope Slope (%): 3

Subregion (LRR or MLRA): LRR N Lat: 41.43341364 Long: -77.38971867 Datum: NAD83

Soil Map Unit Name: GxD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P17

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	20	Yes	FACU
2. Acer sacharum	15	Yes	FACU
3. Pinus strobus	15	Yes	FACU
4.			
5.			
6.			
7.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1. Kalmia latifolia	35	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Herb Stratum (Plot size: 5-Feet)			
1. Dennstaedtia punctilobula	65	Yes	FACU
2. Parathelypteris novaboracensis	15	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P17

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
0-1								organic
1-5	10YR 2/2	100					loam	
5-14	10YR 5/8	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 5-23-2023

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P18

Investigator(s): C. Frey Section, Township, Range: McHenry Twp.

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 41.43346701 Long: -77.38955135 Datum: NAD83

Soil Map Unit Name: CxD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X No _____ Depth (inches): 2.5

Water Table Present? Yes X No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Groundwater discharge noted within wetland boundary

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P18

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	25	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Chrysosplenium americanum	65	Yes	OBL
2. Viola blanda	5	No	FACW
3. Viola sororia	5	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☑ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

Morphological adaptations noted on roots of all eastern hemlock (Tsuga canadensis) within the wetland boundary - indicator status reassigned from FACU to FAC.

SOIL Sampling Point: P18

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

Highly organic soil, inundated or saturated throughout wetland area; hydric soils assumed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 5-23-2023

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P19

Investigator(s): C. Frey Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR or MLRA): LRR N Lat: 41.43084375 Long: -77.38980437 Datum: NAD83

Soil Map Unit Name: DlE NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Subtle depression within a floodplain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P19

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	65	Yes	FACU
2. Betula allegheniensis	5	No	FAC
3.			
4.			
5.			
6.			
7.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		

Sapling/Shrub Stratum (Plot size: 15-Feet)			
1. Tsuga canadensis	3	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 5-Feet)			
1. Maianthemum canadensis	3	Yes	FAC
2. Acer rubrum	2	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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: 67 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

SOIL Sampling Point: P19

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1.5								organic
1.5-3	10YR 2/2	100					silt loam	
3-14	5YR 5/3	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 5-23-2023

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P20

Investigator(s): C. Frey Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 41.425576 Long: -77.38935532 Datum: NAD83

Soil Map Unit Name: CnD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X No _____ Depth (inches): 0.75

Water Table Present? Yes X No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Groundwater discharge noted within wetland boundary

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P20

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	75	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1. Tsuga canadensis	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5-Feet)			
1. Carex prasina	65	Yes	OBL
2. Chrysoplenium americanum	25	Yes	OBL
3. Viola blanda	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☑ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

Morphological adaptations noted on roots of all eastern hemlock (Tsuga canadensis) within the wetland boundary - indicator status reassigned from FACU to FAC.

SOIL Sampling Point: P20

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

Highly organic soil, inundated or saturated throughout wetland area; hydric soils assumed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 5-23-2023

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P21

Investigator(s): C. Frey Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 8

Subregion (LRR or MLRA): LRR N Lat: 41.425789 Long: -77.38960292 Datum: NAD83

Soil Map Unit Name: CnD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P21

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	25	Yes	FACU
2. Acer sacharum	35	Yes	FACU
3.			
4.			
5.			
6.			
7.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Maianthemum canadense	15	Yes	FAC
2. Acer sacharum	5	Yes	FACU
3. Liriodenron tulipifera	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL Sampling Point: P21

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5								organic
0.5-16	5YR 4/4	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 5-23-2023

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P22

Investigator(s): C. Frey Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR or MLRA): LRR N Lat: 41.42538359 Long: -77.38986679 Datum: NAD83

Soil Map Unit Name: CnD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X No _____ Depth (inches): 0.5

Water Table Present? Yes X No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

Groundwater discharge noted within wetland boundary

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P22

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	30	Yes	FAC
2. Fraxinus pensylvanica	40	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Carex prasina	5	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☑ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

Morphological adaptations noted on roots of all eastern hemlock (Tsuga canadensis) within the wetland boundary - indicator status reassigned from FACU to FAC.

SOIL Sampling Point: P22

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

Highly organic soil, inundated or saturated throughout wetland area; hydric soils assumed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Phase IV Pipline City/County: Lycoming Sampling Date: 5-23-2023

Applicant/Owner: Pennsylvania General Energy Co., LLC State: PA Sampling Point: P23

Investigator(s): C. Frey Section, Township, Range: McHenry

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR or MLRA): LRR N Lat: 41.42487356 Long: -77.39004768 Datum: NAD83

Soil Map Unit Name: CnD NWI classification: N/A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No _____	**Is the Sampled Area within a Wetland?** **Yes** X **No** _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 X	Depth (inches): _____
Water Table Present?	Yes X	No _____	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** _____

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

Remarks:

Groundwater discharge noted within wetland boundary

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: P23

Tree Stratum (Plot size: 30-Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tsuga canadensis	25	Yes	FAC
2. Fraxinus pensylvanica	30	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	55 = Total Cover		
50% of total cover: 27.5	20% of total cover: 11		
Sapling/Shrub Stratum (Plot size: 15-Feet)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5-Feet)			
1. Carex prasina	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (Plot size: 30-Feet)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of 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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☑ 4 - 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

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

Morphological adaptations noted on roots of all eastern hemlock (Tsuga canadensis) within the wetland boundary - indicator status reassigned from FACU to FAC.

SOIL Sampling Point: P23

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked 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 Mucky 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** X **No** _____

Remarks:

Highly organic soil, saturated throughout wetland area; hydric soils assumed.

APPENDIX B: PHOTOGRAPHS

Wetland 1

Wetland 4

Wetland 2

Wetland 5

Wetland 3

Wetland 6

Wetland 7

Wetland 12

Wetland 10

Wetland 13

Wetland 11

Wetland 14

Wetland 15

P3

Wetland 16

P5

Wetland 17

P10

Channel 1

Channel 4

Channel 2

Channel 5

Channel 3

Channel 6

Channel 6a

Channel 9a

Channel 8

Channel 9b

Channel 9

Channel 10

Channel 11

Channel 12

APPENDIX C: VEGETATION

Table 1: Phase IV Pipeline Vegetation List

Scientific Name	**Common Name**
Acer rubrum	Red Maple
Acer saccharum	Sugar Maple
Berberis thunbergii	Japanese Barberry
Betula alleghaniensis	Yellow Birch
Brachyelytrum erectum	Bearded Shorthusk
Carex intumescens	Greater Bladder Sedge
Carya ovata	Shag-Bark Hickory
Chrysosplenium americanum	American Golden-Saxifrage
Dennstaedtia punctilobula	Hay-Scented Fern
Dryopteris sp.	Fern
Fraxinus sp.	Ash
Gaultheria procumbens	Eastern Teaberry
Glyceria striata	Fowl Manna Grass
Kalmia latifolia	Mountain-Laurel
Lycopus uniflorus	Northern Water-Horehound
Medeola virginiana	Indian Cucumber-Root
Mitchella repens	Partridge-Berry
Osmundastrum cinnamomeum	Cinnamon Fern
Parathelypteris noveboracensis	New York Fern
Pinus strobus	Eastern White Pine
Pteridium aquilinum	Northern Bracken Fern
Quercus alba	Northern White Oak
Quercus montana	Chestnut Oak
Trientalis borealis	Maystar
Tsuga canadensis	Eastern Hemlock
Vaccinium angustifolium	Late Low bush Blueberry
Viola sororia	Hooded Blue Violet
Viola spp.	Violet

APPENDIX D: QUALIFICATIONS

Qualifications of Chris Frey

EDUCATION

Slippery Rock University:

- Bachelors of Science degree in Geography: with a track in Environmental Studies
- Minor in Geographic Information Technology
- Minor in Political Science

PROFESSIONAL TRAINING

- 36 hour Wetland Delineation Training: Institute For Wetland & Environmental Education & Research
- COE Interim Regional Supplements to the 1987 Manual Training: W.S. Sipple Environmental Training
- Identification of Grasses: William S. Sipple
- PEC Basic Orientation / SafeGulf / SafeLand / T.R.A.P.

EMPLOYMENT EXPERIENCE

Chris has been employed by Beran Environmental Services, Inc. since 2009. His primary areas of expertise include wetland delineation, wetland functional assessment, wetland mitigation (design and monitoring), plant identification for RTE (rare, threatened, endangered) surveys and invasive species, and plant management (native and exotic/invasive). Chris holds a Wild Plant Management Permit for collection of Pennsylvania Endangered and Threatened plant species for submission as voucher specimens while conducting botanical studies in Pennsylvania.

While at Beran Environmental Services, Chris has gained experience in the following areas:

- Wetland identification and delineation
- RTE botanical surveys
- Invasive plant management
- GIS data collection and mapping
- Wetland functional assessment
- Stream and watershed assessments
- Groundwater monitoring
- Wetland mitigation plan development
- Wetland mitigation monitoring
- Plant identification using dichotomous keys
- Permitting
- Environmental Assessment

Previously Chris was employed by Three Sisters Farm for five years as a Garden Manager. His duties during his employment with Three Sisters Farm included garden planning, employee oversight, and garden maintenance.

Chris was also employed by the Horticulture Department of the North Carolina Zoological Park for one year. His duties during his employment with the North Carolina Zoological Park in the North America section included landscape preparation, planting, and maintenance of plants found in the Eastern United States.

Qualifications of Brian Fleming

Education

Penn State University - 2008
Bachelors of Science – Forest Science (Biology Option)

Relevant Courses

- Field Dendrology
- Forest Ecology
- Silviculture
- Forest Ecosystem Management
- Invasive Species Identification and Control
- Ornithology

Employment Experience

Brian is currently employed with Beran Environmental Services, Inc. While working at Beran Environmental Services, Brian has gained experience in:

- GPS Data Collection
- ArcGIS Mapping
- Managing Large Scale Data Sets and Geodatabases
- Stream/Wetland Delineations, Reports, Functional Assessments and Environmental Assessments
- Botanical Surveys
- Invasive Plant Species Surveys, Reports, Mapping, and Treatment
- State and Federal Permitting
- Surface and Groundwater Sampling
- Sediment Sampling
- Project Management
- Stormwater Management and Infiltration Testing

Prior to working at Beran Environmental Services, Brian was employed at Wallace and Pancher Inc. as an assistant environmental scientist. While there, responsibilities included

- Monitoring Stream Velocity and Discharge
- Classification of Streams as Ephemeral, Intermittent, or Perennial
- Macroinvertebrate Sampling (Collection and Identification)
- Backpack Electrofishing (Collection and Identification)
- Wetland Delineations

Professional Training

- 38 hour Army Corps of Engineers Wetland Delineation (Richard Chinn Environmental Training) - 2009
- PEC Basic Orientation / SafeGulf / SafeLand / T.R.A.P. - 2011
- Ohio Rapid Assessment Methodology for Wetlands (Ohio EPA) - 2012
- Identification of Grasses (William S. Sipple) - 2012
- Certified Commercial Pesticide Applicator - 2013

Other

- While in college Brian was involved in the work study program at a Centre Wildlife Care. Brian gained experience identifying, handling, and rehabilitating wildlife such as birds of prey, perching birds, raccoons, foxes, muskrats, squirrels, rabbits, opossums, and snakes.

ATTACHMENT M:

EROSION AND SEDIMENT CONTROL PLAN

(An ESCGP-3 application will be submitted to the PADEP Division of Oil and Gas along with the associated paperwork)

GENERAL NOTES

A copy of the approved erosion and sediment control plan must be available at the project site at all times

The source of contours shown on this plan is PA Spatial Data Access (PASDA) USGS QL2 LIDAR. The contour interval shown on the following plan sheets is at a two (2) foot interval.

Utilities shown on this plan are for reference purposes only. It shall be the responsibility of the contractor to verify the exact location of all utilities prior to any excavation by notifying The Pennsylvania One Call System at least three days in advance by calling 1-800-242-1776.

At least 7 days prior to starting any earth disturbance activities (including clearing and grubbing), the PERMITTEE shall invite all co-permittees, operators, licensed professional or designees, and a representative from the Department of Environmental Protection to an on-site preconstruction meeting.

Erosion and sediment control measures will be installed or constructed and functional before site disturbance begins in the drainage areas to those control measures.

All earth disturbance activities shall proceed in accordance with the sequence provided on this plan. Deviation from the sequence must be approved in writing by DEP prior to implementation.

Equipment servicing or fueling shall not occur within 50 feet of any stream or wetland.

Clearing, grubbing and topsoil stripping shall be limited to those areas described in each stage of the construction sequence. General site clearing, grubbing and topsoil stripping may not commence in any stage or phase of the project until the E&S BMPs specified by the Construction Sequence for that stage or phase have been installed and are functioning as described in this document.

At no time shall construction vehicles be allowed to enter areas outside the limit of disturbance boundaries shown on this plan. These areas must be clearly marked and/or fenced off before clearing and grubbing operations begin.

Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2H:1V or flatter.

Temporary Erosion Control Blankets or soil binders and flocculants with polyacrylamides such as Flexterra, or a comparable alternative (see Table 11.7 on Sheet 9) must be installed a minimum of 100' on either side of the streams and/or wetlands, and on all slopes 3:1 and greater. Temporary Erosion Control Blankets must be biodegradeable and must not contain long-term synthetic netting.

Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate BMPs to minimize the potential for erosion and sediment pollution and notify the regional office of DEP.

All off-site waste and borrow areas must have an E&S Plan approved by the DEP fully implemented prior to being activated.

All pumping of water from any work area shall be done according to the procedure described in this plan, over undisturbed vegetated areas.

Until the site is stabilized, all erosion and sediment BMPs must be maintained properly. Maintenance must include inspections of all erosion and sediment BMPs after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching and renetting must be performed immediately. If erosion and sediment control BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required.

A log showing dates that E&S BMPs were inspected as well as any deficiencies found and the date they were corrected shall be maintained on the site and be made available to regulatory agency officials at the time of inspection.

Sediment tracked onto any public roadway or sidewalk shall be returned to the construction site immediately each work day and disposed in the manner described in this plan. In no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer or surface water.

All sediment removed from BMPs shall be disposed of in the manner described on the plan drawings.

Areas which are to be topsoiled shall be scarified to a minimum depth of 4 inches prior to placement of topsoil. Areas to be vegetated shall have a minimum 4 inches of topsoil in place prior to seeding and mulching where the native soil has such depth. Fill outslopes shall have a minimum of 2 inches of topsoil.

All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc. shall be compacted in accordance with local requirements or codes.

All fills shall be placed in compacted layers not to exceed 9 inches in thickness.

Fill materials shall be free of frozen particles, brush, roots, sod or other foreign or objectionable materials that would interfere with or prevent construction of satisfactory fills.

Frozen materials or soft, mucky or highly compressible materials shall not be incorporated into fills.

Fill shall not be placed on saturated or frozen surfaces.

All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated.

Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.

Upon temporary cessation of an earth disturbance activity or any stage or phase of an activity where a cessation of earth disturbance activities will exceed 4 days, the site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities.

Permanent stabilization is defined as a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding or other movements.

E&S BMPs must remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by DEP.

Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the PADEP for an inspection prior to removal/conversion of the E&S BMPs.

After final site stabilization has been achieved, temporary E&S BMPs must be removed or converted to permanent post construction stormwater management BMPs. Areas disturbed during removal or conversion of the BMPs must be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions should be done only during the germinating season.

Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the PADEP to schedule a final inspection.

Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site, or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties being instituted by the Pennsylvania Department of Environmental Protection as defined in Section 602 of the Pennsylvania Clean Streams Law. The Clean Streams Law provides for up to $10,000 per day in civil penalties, up to $10,000 in summary criminal penalties, and up to $25,000 in misdemeanor criminal penalties for each violation.

Site Soil Analysis
Soils identified within the disturbance area of the project on Figure 2 include Clymer, Cookport, Dekalb, Lehew and Leck Kill. These soils have varying limitations including erodibility, cutbanks cave, corrosive to concrete or steel, low strength, piping, poor topsoil, high water table and potentially hydric. The above limitations will be addressed in the following ways:

1. Erodible soils: An increased emphasis on inspection of erosion and sedimentation controls will be placed on soil units with this limitation.
2. Cut banks cave: Areas where cut banks occur will be seeded and mulched as specified within this plan resulting in a vegetative cover that will provide adequate protection to cut banks. Slopes 3:1 and greater will utilize erosion control blankets.
3. Corrosive to concrete and steel: No concrete structures are proposed within this plan. Steel lines that lack a corrosive barrier such as primer and paint form a natural patina which adds in the protection against corrosion.
4. High water table: This limitation takes into account the seasonal variation in water table elevations, during construction activities within soil units with this limitation the operator will remain cognitive of this limitation and take precautions as necessary.
5. Low strength: This limitation has been addressed by the construction standards to be used within fill slope areas. These areas are to be compacted by sheep's foot or pad roller. The loose lift thickness must be nine inches or less and the maximum particle size is six inches. Five passes of the compaction equipment over the entire surface of each lift is required. Dam embankment compaction to visible non-movement is required.
6. Piping: Piping has been addressed through the construction practices detailed above within the low strength section.
7. Poor topsoil: This limitation has been addressed through the use of supplements such as lime and fertilizer during seeding / stabilization measures.
8. Potentially hydric soils: This limitation infers the potential for wetlands on site. During the site delineation, seventeen (17) wetlands and fifteen (15) watercourses were identified within the delineation boundary.

Limiting Soil Characteristics

Map Symbol	Soil Name	Erodible	Cut Banks Cave	Corrosive to Concrete or Steel	High Water Table	Low Strength	Piping	Poor Topsoil	Potentially Hydric
CmB	Clymer channery loam, 3-8% slopes	X	X	C		X	X	X	X
CmC	Clymer channery loam, 8-15% slopes	X	X	C		X	X	X	X
CnB	Clymer very stony loam, 0-8% slopes	X	X	C		X	X	X	X
CnD	Clymer very stony loam, 8-25% slopes	X	X	C		X	X	X	X
CoB	Cookport loam, 3-8% slopes	X	X	C/S	X	X	X	X	X
CxB	Cookport channery loam, 0-8% slopes	X	X	C/S	X	X	X	X	X
CxD	Cookport channery loam, 8-25% slopes	X	X	C/S	X	X	X	X	X
DkD	Dekalb very stony sandy loam, 8-25% slopes		X	C		X	X	X	
DlE	Dekalb and Lehew very stony sandy loams, 25-80% slopes		X	C		X	X	X	
LkB	Leck kill channery silt loam, 3-8% slopes		X	C		X	X	X	

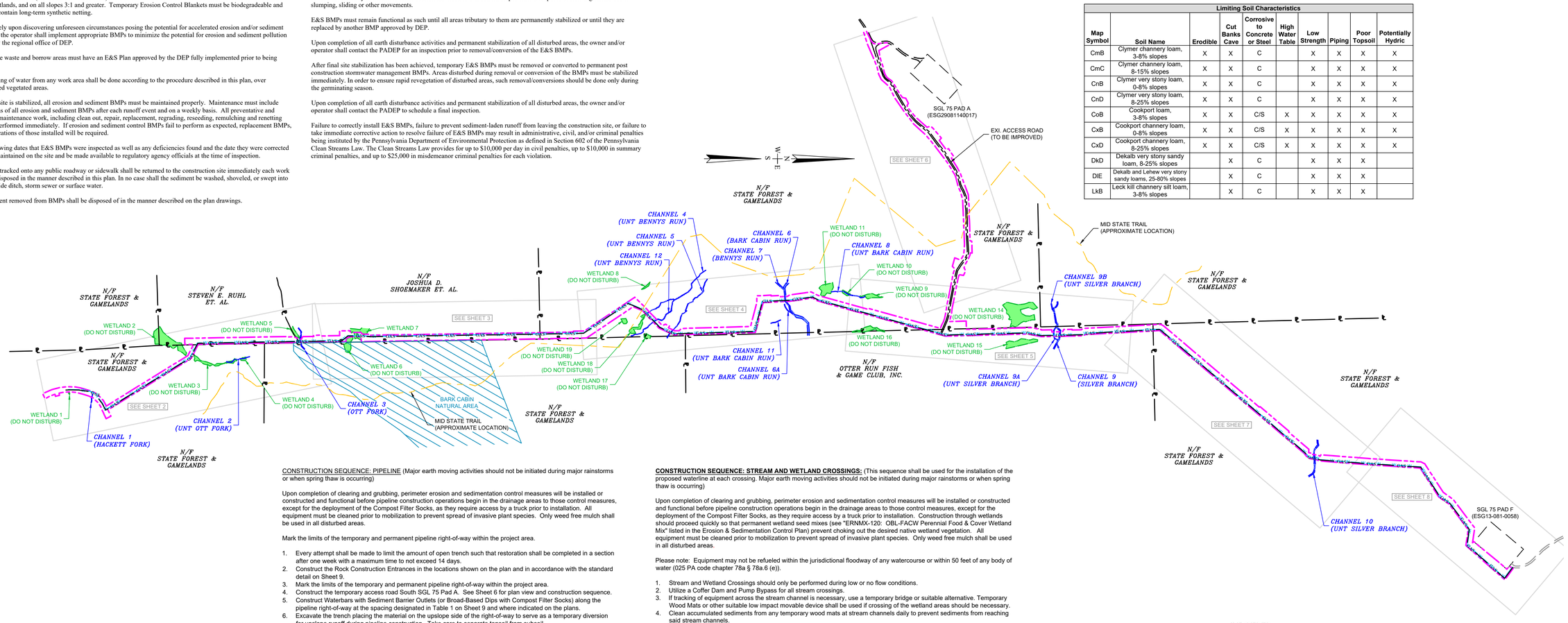
Disturbed Area Including Perimeter E & S Controls

Total (Acres) 42.60 REV. 42.17

Watershed Information: Pipelines are within the following watersheds:

Hackett Fork: CWF (D), EV (E)
Ott Fork: CWF (D), HQ-CWF (E)
Bennys Run: CWF (D), HQ-CWF (E)
Bark Cabin Run: CWF (D), HQ-CWF (E)
Silver Branch: CWF (D), HQ-CWF (E)

All designations are from 025 PA Code, Chapter 93 (D), or the PA DEP Existing Use Classifications (E).



CONSTRUCTION SEQUENCE: PIPELINE (Major earth moving activities should not be initiated during major rainstorms or when spring thaw is occurring)

Upon completion of clearing and grubbing, perimeter erosion and sedimentation control measures will be installed or constructed and functional before pipeline construction operations begin in the drainage areas to those control measures, except for the deployment of the Compost Filter Socks, as they require access by a truck prior to installation. All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species. Only weed free mulch shall be used in all disturbed areas.

Mark the limits of the temporary and permanent pipeline right-of-way within the project area.

1. Every attempt shall be made to limit the amount of open trench such that restoration shall be completed in a section after one week with a maximum time to not exceed 14 days.
2. Construct the Rock Construction Entrances in the locations shown on the plan and in accordance with the standard detail on Sheet 9.
3. Mark the limits of the temporary and permanent pipeline right-of-way within the project area.
4. Construct the temporary access road South SGL 75 Pad A. See Sheet 6 for plan view and construction sequence.
5. Construct Waterbars with Sediment Barrier Outlets (or Broad-Based Dips with Compost Filter Socks) along the pipeline right-of-way at the spacing designated in Table 1 on Sheet 9 and where indicated on the plans.
6. Excavate the trench placing the material on the upslope side of the right-of-way to serve as a temporary diversion for upslope runoff during pipeline construction. Take care to separate topsoil from subsoil.
7. Use pumped water filter bags with compost filter socks to remove any water existing within the trench as needed.
8. Install proper bedding material and place the pipeline in the trench. Trench spoil shall be placed on the upslope side of right-of-way to serve as a temporary diversion for upslope runoff during pipeline installation.
9. Install trench plugs at the designated areas as specified in the Trench Plug detail on Sheet 9.
10. Backfill the open trench, placing the topsoil last as the final grade in disturbed areas containing only the pipeline.
11. Immediately stabilize said areas as per the permanent stabilization specifications on Sheet 9 once cessation of earth disturbance more than four days has occurred and immediately upon reaching final grade.
12. All disturbed areas shall be immediately stabilized as per the temporary stabilization specifications on Sheet 9.
13. Stumps are to remain within the forested riparian buffers (within the temporary right-of-way) at all pipeline stream crossings to maintain the stability of these stream embankments. Stumps will be cut flush with or ground slightly below the surface.
14. Finish Grade and repair all Waterbars (or Broad-Based Dips) to their permanent condition at the designated locations in accordance with the spacing specifications.
15. Scarify, lime, fertilize, seed and mulch (weed free mulch only) all remaining disturbed areas as per the specifications in this plan or suitable alternative.
16. Install temporary erosion control blankets a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Temporary erosion control blankets must be biodegradable and must not contain long-term synthetic netting.
17. After final stabilization (minimum uniform 70% perennial vegetative cover and/or permanent stabilization) has been achieved, temporary erosion and sedimentation control measures shall be removed.
18. Any waste material accumulated during construction, which will not be reused in later construction, shall be removed from the site and properly disposed of at a PADEP approved facility.

Upon temporary cessation of an earth disturbance activity or any stage or phase of an activity where a cessation of earth disturbance activities will exceed 4 days, the site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities.

CONSTRUCTION SEQUENCE: STREAM AND WETLAND CROSSINGS: (This sequence shall be used for the installation of the proposed waterline at each crossing. Major earth moving activities should not be initiated during major rainstorms or when spring thaw is occurring)

Upon completion of clearing and grubbing, perimeter erosion and sedimentation control measures will be installed or constructed and functional before pipeline construction operations begin in the drainage areas to those control measures, except for the deployment of the Compost Filter Socks, as they require access by a truck prior to installation. Construction through wetlands should proceed quickly so that permanent wetland seed mixes (see "ERNMX-120: OBL-FACW Perennial Food & Cover Wetland Mix" listed in the Erosion & Sedimentation Control Plan) prevent choking out the desired native wetland vegetation. All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species. Only weed free mulch shall be used in all disturbed areas.

Please note: Equipment may not be refueled within the jurisdictional floodway of any watercourse or within 50 feet of any body of water (025 PA code chapter 78a § 78a.6 (e)).

1. Stream and Wetland Crossings should only be performed during low or no flow conditions.
2. Utilize a Coffer Dam and Pump Bypass for all stream crossings.
3. If tracking of equipment across the stream channel is necessary, use a temporary bridge or suitable alternative. Temporary Wood Mats or other suitable low impact movable device shall be used if crossing of the wetland areas should be necessary.
4. Clean accumulated sediments from any temporary wood mats at stream channels daily to prevent sediments from reaching said stream channels.
5. Mark the limits of disturbance in the vicinity of the proposed crossings.
6. Install Cofferdams (Sandbags) on the upstream and downstream sides of the work area.
7. Use a bypass pump to convey flows past the work area as necessary.
8. Install Compost Filter Socks below the proposed soil stockpile areas and as necessary to prevent sediment from entering the stream.
9. Stumps are to remain within the forested riparian buffers (within the temporary right-of-way) at all pipeline stream crossings to maintain the stability of these stream embankments. Stumps will be cut flush with or ground slightly below the surface.
10. Install Waterbars with Sediment Barrier Outlets upslope of the streams/wetlands.
11. Excavate the trench for the proposed pipelines. Place the material in the designated stockpile areas, taking care to separate the topsoil from the subsoil.
12. Use pumped water filter bags to remove water from the open trenches as necessary.
13. Install proper bedding material and place the pipelines in the trench. All pipelines must be installed a minimum of three (3) feet below the stream bed.
14. Place Trench Plugs around the pipelines on either side of the stream bed, 50' upslope from the stream bank and on either side of Wetland 7.
15. Finish Grade and repair all Waterbars (or Broad-Based Dips) to their permanent condition at the designated locations in accordance with the spacing specifications.
16. Backfill the open trench, placing the topsoil last as the final grade. Where the trench crosses the stream, place stone to stabilize the surface to prevent erosion.
17. Scarify, lime, fertilize, seed and mulch (weed free mulch only) all upland disturbed areas as per the specifications in this plan or suitable alternative; and all wetland and riparian areas as per the specifications for such areas listed on Sheet 9 of this plan.
18. Install temporary erosion control blankets a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Temporary erosion control blankets must be biodegradable and must not contain long-term synthetic netting.
19. After final stabilization (minimum uniform 70% perennial vegetative cover and/or permanent stabilization) has been achieved, temporary erosion and sedimentation control measures shall be removed.
20. Any waste material accumulated during construction, which will not be reused in later construction, shall be removed from the site and properly disposed of at a PADEP approved facility.

NOTE: Upon temporary cessation of an earth disturbance activity or any stage or phase of an activity where a cessation of earth disturbance activities will exceed 4 days, the site shall be immediately seeded, mulched, or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities.

SUMMARY OF MATERIALS (PROJECT TOTAL)

DESCRIPTION	QUANTITY
FILTER BAG (each)	9
WETLAND CROSSING (ln-ft) (Pipelines)	162
TIMBER MATS (Per Mat, 4' x 16')	15
STREAM CROSSING (ln-ft) (Pipelines)	195
STREAM CROSSING/BRIDGE BUILDING (each)	7
PUMP BY-PASSES (each)	8
COFFERDAMS (each)	16
TEMPORARY BRIDGE (ln-ft)	346
SEED, FERTILIZER, LIME (acres)	33.20
WETLAND SEEDING (acres)	0.05
WETLAND PLANTING (acres)	0.04
RIPARIAN BUFFER SEEDING (acres)	4.02
FORESTED RIPARIAN BUFFER PLANTING (acres)	2.86
ROCK CONSTRUCTION ENTRANCE (each)	2
12-INCH FILTER SOCK (ln-ft)	2,729
TEMPORARY FENCING (ln-ft)	1,559
EROSION CONTROL BLANKET (sq. ft.)	200,216
TRENCH PLUGS (each)	90
WATERBARS (each)	107

LEGEND

- EXISTING ACCESS ROAD
- GAS — PROPOSED NATURAL GAS PIPELINE
- W — PROPOSED WATERLINE
- LIMIT OF DISTURBANCE
- EXISTING STREAM
- EXISTING WETLAND
- MID STATE TRAIL
- BARK CABIN NATURAL AREA

SCALE: 1" = 600' 300' 600' 1200' FEET

CALL BEFORE YOU DIG!
PA LAW REQUIRES
3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
1-800-242-1776

I do hereby certify to the best of my knowledge, information and belief, that the Erosion and Sedimentation Control and Site Restoration Plan and Post Construction BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — ERIC DAVID DOUGHERTY — PE-057537 — MAR 04 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS
Revised 12/01/23 Revised LOD and Summary of Materials, added Mid State Trail
Revised 03/04/24 Added Bark Cabin Natural Area

SHEET 1 OF 9

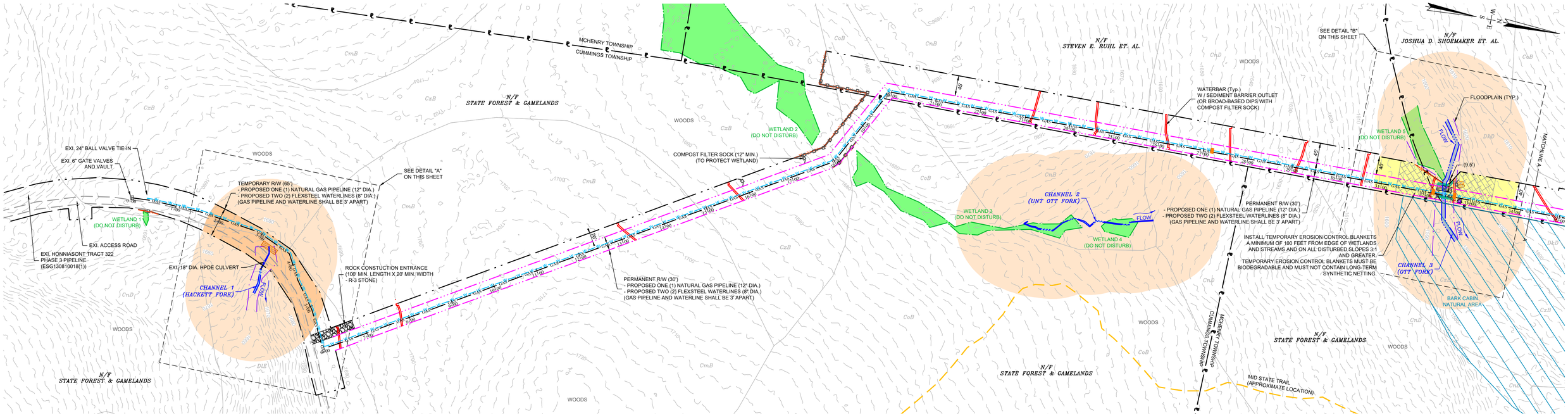
EROSION & SEDIMENTATION CONTROL PLAN

PHASE IV PIPELINE

Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

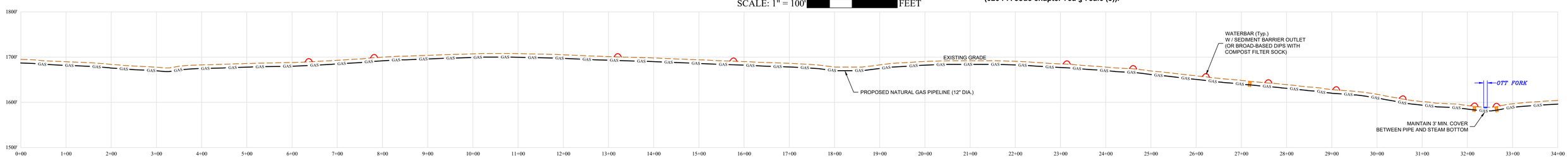
September 2023



PLAN VIEW

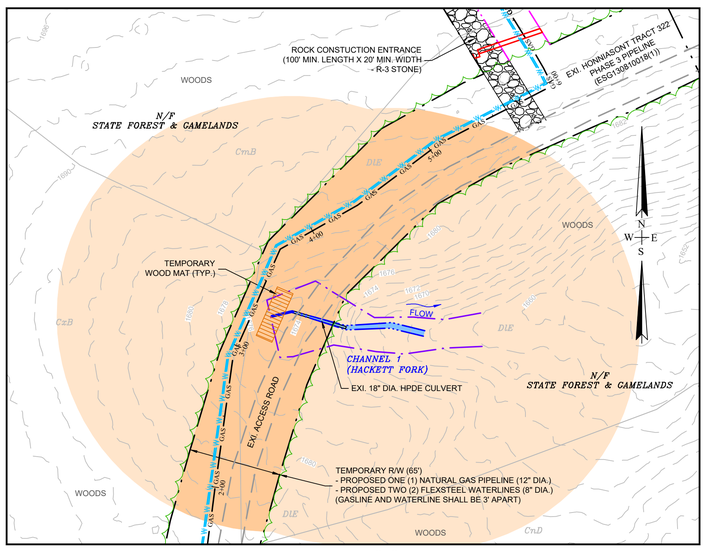
SCALE: 1" = 100' (50' 100' 200' FEET)

Please note: Equipment may not be refueled within the jurisdictional floodway of any watercourse or within 50 feet of any body of water (025 PA code chapter 78a § 78a.6 (e)).



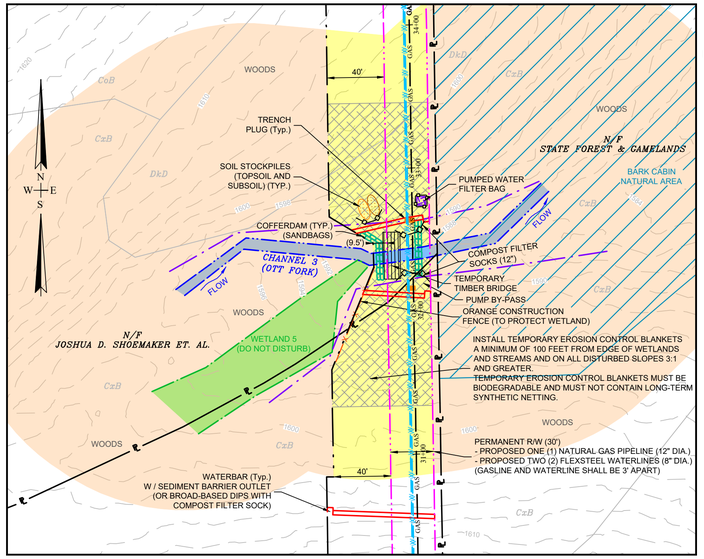
PROFILE

SCALE: HORZ: 1" = 100'
VERT: 1" = 100'



DETAIL "A"

SCALE: 1" = 50' (25' 50' 100' FEET)



DETAIL "B"

SCALE: 1" = 50' (25' 50' 100' FEET)

NOTE: HACKETT FORK AND OTT FORK ARE LISTED AS CLASS A WILD TROUT STREAMS FROM HEADWATERS TO MOUTHS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND APRIL 1 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.

CALL BEFORE YOU DIG!
PA LAW REQUIRES
3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
1-800-242-1776

NOTES: Waterbars with Sediment Barrier Outlets (or Broad-Based Dips with Compost Filter Sock) shall be installed as shown on the plans along the pipeline in accordance with the spacing indicated in the tables on Sheet 9.

Waterbar Alternative
Broad-Based Dips with Compost Filter Socks may be used in place of Waterbars on pipeline rights-of-way ***as field conditions dictate.***

Trench Plugs must be installed as shown on the plans and at the spacing shown on Sheet 9.

Erosion Control Blankets must be installed a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

Stumps are to remain within the forested riparian buffers (within the temporary right-of-way) at all pipeline stream crossings to maintain the stability of these stream embankments. Stumps will be cut flush with or ground slightly below the surface.

A Floodplain Analysis was completed to determine the floodplain boundary for each stream within the pipeline right-of-way. See Attachment M of the Joint Permit Application for the completed report.

All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species.

Only weed free mulch shall be used in all disturbance areas.

ALL STREAM AND WETLAND CROSSINGS WILL BE PERFORMED UNDER JOINT PERMIT AUTHORIZATION.

SUMMARY OF MATERIALS

DESCRIPTION	QUANTITY
FILTER BAG (each)	1
TIMBER MATS (Per Mat, 4' x 16')	6
STREAM CROSSING (In-ft) (Pipelines)	24
STREAM CROSSING/BRIDGE BUILDING (each)	1
PUMP BY-PASSES (each)	1
COFFERDAMS (each)	2
TEMPORARY BRIDGE (In-ft)	33
SEED, FERTILIZER, LIME (acres)	4.59
RIPARIAN BUFFER SEEDING (acres)	0.86
FORESTED RIPARIAN BUFFER PLANTING (acres)	0.35
ROCK CONSTRUCTION ENTRANCE (each)	1
12-INCH FILTER SOCK (In-ft)	197
TEMPORARY FENCING (In-ft)	582
EROSION CONTROL BLANKET (sq. ft.)	12,626
TRENCH PLUGS (each)	6
WATERBARS (each)	13

LEGEND

- EXISTING CONTOURS
- GAS — PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- W — PROPOSED WATERLINE
- EXISTING ROAD
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- COMPOST FILTER SOCK
- SOIL BOUNDARY
- ABC SOIL TYPE
- PROPERTY LINE
- TREELINE
- MID STATE TRAIL
- FLOODPLAIN (CALCULATED)
- EXISTING STREAM
- EXISTING WETLAND
- FORESTED RIPARIAN BUFFER
- FORESTED RIPARIAN BUFFER (DISTURBED)
- RIPARIAN BUFFER (DISTURBED)
- BARK CABIN NATURAL AREA

I do hereby certify to the best of my knowledge, information and belief, that the Erosion and Sedimentation Control and Site Restoration Plan and Post Construction BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ERIC DAVID DOUGHERTY — ENGINEER — PE-057537 — MAR 04 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS
Revised 12/01/23 Revised and labeled Temp. R/W, changed Perm. R/W color, revised Summary of Materials table, revised Riparian Buffers, added Mid State Trail
Revised 03/04/24 Revised trout streams note to Class A wild streams, added Bark Cabin Natural Area

SHEET 2 OF 9

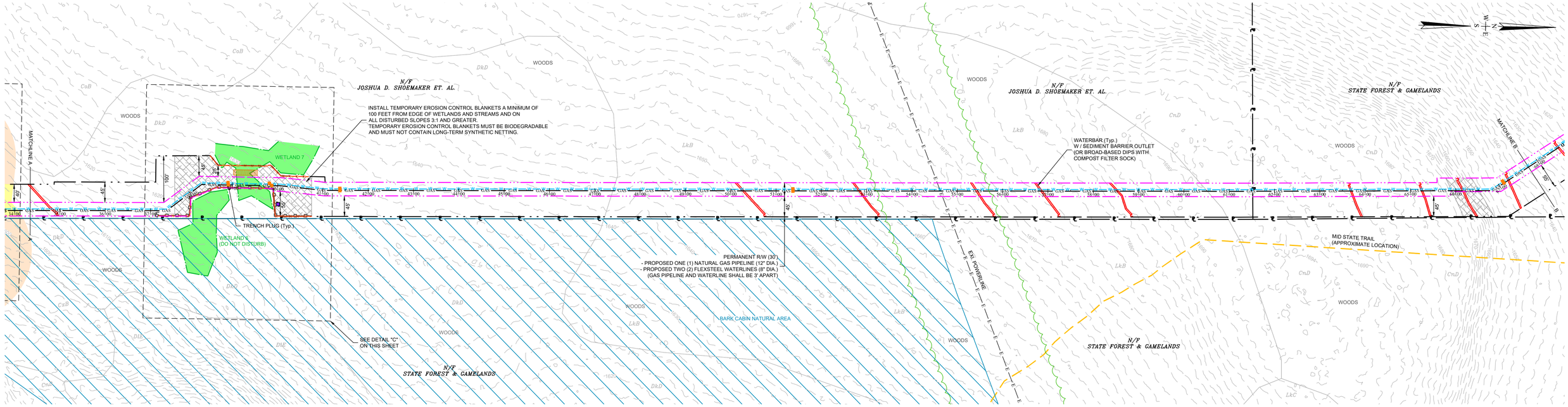
EROSION & SEDIMENTATION CONTROL PLAN

PHASE IV PIPELINE

Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

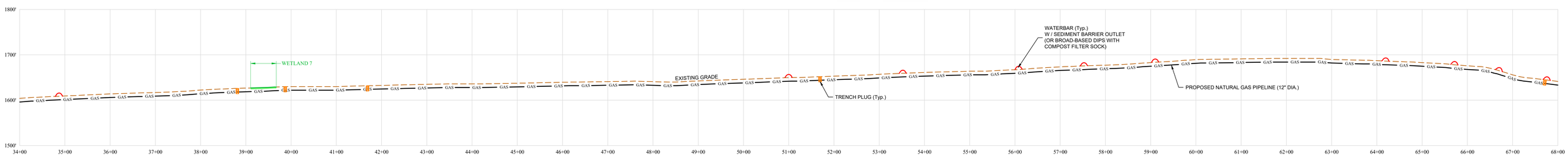
Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

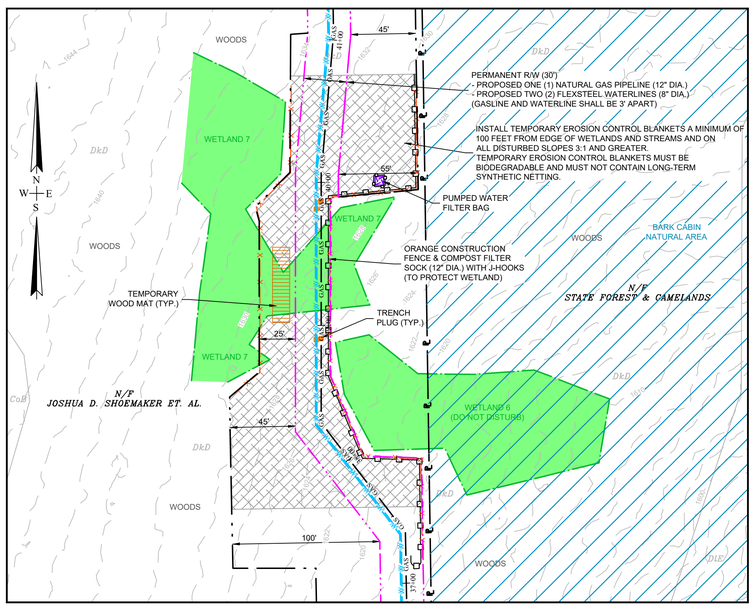


Please note: Equipment may not be refueled within the jurisdictional floodway of any watercourse or within 50 feet of any body of water (025 PA code chapter 78a § 78a.6 (e)).

PLAN VIEW
SCALE: 1" = 100' 50' 100' 200' FEET



PROFILE
SCALE: HORZ: 1" = 100'
VERT: 1" = 100'



DETAIL "C"
SCALE: 1" = 50' 25' 50' 100' FEET

NOTES: Waterbars with Sediment Barrier Outlets (or Broad-Based Dips with Compost Filter Sock) shall be installed as shown on the plans along the pipeline in accordance with the spacing indicated in the tables on Sheet 9.

Waterbar Alternative
Broad-Based Dips with Compost Filter Socks may be used in place of Waterbars on pipeline rights-of-way ***as field conditions dictate.***

Trench Plugs must be installed as shown on the plans and at the spacing shown on Sheet 9.

Erosion Control Blankets must be installed a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

Stumps are to remain within the forested riparian buffers (within the temporary right-of-way) at all pipeline stream crossings to maintain the stability of these stream embankments. Stumps will be cut flush with or ground slightly below the surface.

A Floodplain Analysis was completed to determine the floodplain boundary for each stream within the pipeline right-of-way. See Attachment M of the Joint Permit Application for the completed report.

All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species.

Only weed free mulch shall be used in all disturbance areas.

ALL STREAM AND WETLAND CROSSINGS WILL BE PERFORMED UNDER JOINT PERMIT AUTHORIZATION.

SUMMARY OF MATERIALS

DESCRIPTION	QUANTITY
FILTER BAG (each)	1
WETLAND CROSSING (ln-ft) (Pipelines)	162
TIMBER MATS (Per Mat, 4' x 16')	9
SEED, FERTILIZER, LIME (acres)	5.85
WETLAND SEEDING (acres)	0.05
WETLAND PLANTING (acres)	0.04
12-INCH FILTER SOCK (ln-ft)	454
TEMPORARY FENCING (ln-ft)	674
EROSION CONTROL BLANKET (sq. ft.)	26,076
TRENCH PLUGS (each)	10
WATERBARS (each)	9

LEGEND

- EXISTING CONTOURS
- GAS — PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- W — PROPOSED WATERLINE
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- COMPOST FILTER SOCK
- X—X—X— ORANGE CONSTRUCTION FENCE
- SOIL BOUNDARY
- ABC SOIL TYPE
- PROPERTY LINE
- MID STATE TRAIL
- EXISTING STREAM
- EXISTING WETLAND
- BARK CABIN NATURAL AREA

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DAYS IN DESIGN STAGE - STOP CALL
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I do hereby certify to the best of my knowledge, information and belief, that the Erosion and Sedimentation Control and Site Restoration Plan and Post Construction BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ERIC DAVID DOUGHERTY — ENGINEER — PE-057537 — MAR 04 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS

Revised 12/01/23
Labeled Temp. R/W, changed Perm. R/W color, added Mid State Trail

Revised 03/04/24
Added Bark Cabin Natural Area,changed pipeline and waterline alignments and flipped permanent and temporary right-of-ways between Stations 41+00 to 74+00

SHEET 3 OF 9

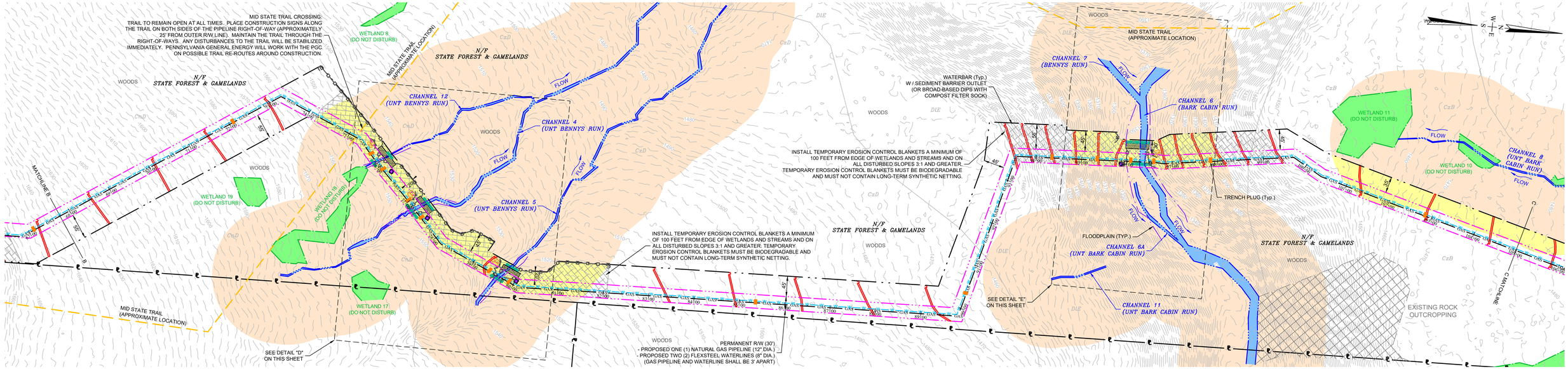
EROSION & SEDIMENTATION CONTROL PLAN

PHASE IV PIPELINE

Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

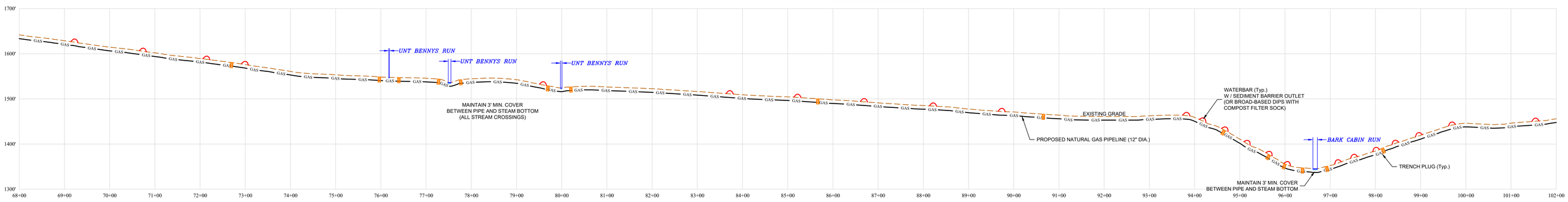
September 2023



PLAN VIEW

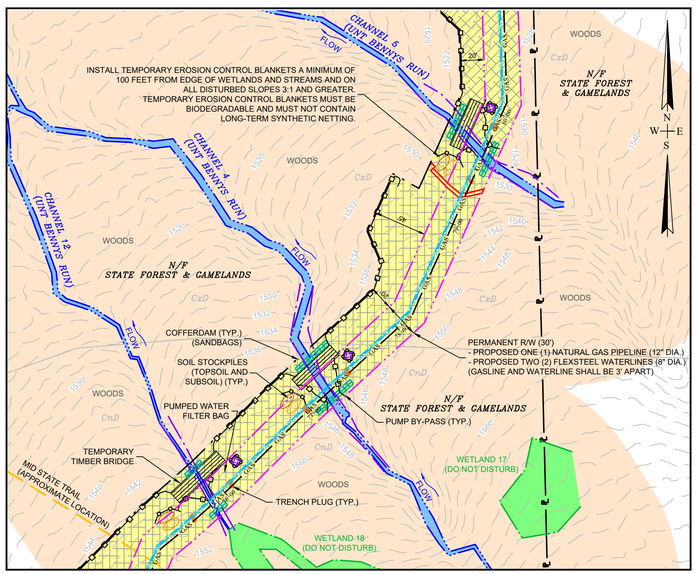
SCALE: 1" = 100' (50' 100' 200' FEET)

Please note: Equipment may not be refueled within the jurisdictional floodway of any watercourse or within 50 feet of any body of water (025 PA code chapter 78a § 78a.6 (e)).



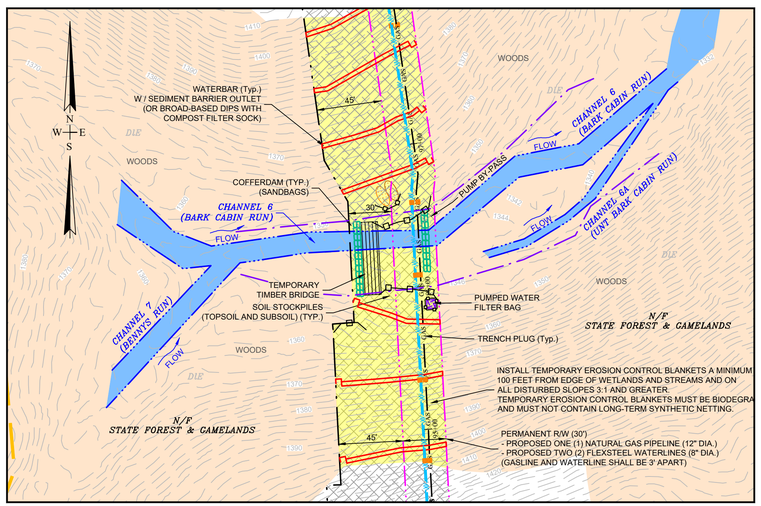
PROFILE

SCALE: HORZ: 1" = 100'
VERT: 1" = 100'



DETAIL "D"

SCALE: 1" = 60' (30' 60' 120' FEET)



DETAIL "E"

SCALE: 1" = 50' (25' 50' 100' FEET)

NOTES:
1. Waterbars with Sediment Barrier Outlets (or Broad-Based Dips with Compost Filter Sock) shall be installed as shown on the plans along the pipeline in accordance with the spacing indicated in the tables on Sheet 9.

   Waterbar Alternative
   Broad-Based Dips with Compost Filter Socks may be used in place of Waterbars on pipeline rights-of-way ***as field conditions dictate.***

2. Trench Plugs must be installed as shown on the plans and at the spacing shown on Sheet 9.
3. Erosion Control Blankets must be installed a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Erosion control blankets must be biodegradable and must not contain long-term synthetic netting.
4. Stumps are to remain within the forested riparian buffers (within the temporary right-of-way) at all pipeline stream crossings to maintain the stability of these stream embankments. Stumps will be cut flush with or ground slightly below the surface.
5. A Floodplain Analysis was completed to determine the floodplain boundary for each stream within the pipeline right-of-way. See Attachment M of the Joint Permit Application for the completed report.
6. All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species.
7. Only weed free mulch shall be used in all disturbance areas.
8. ALL STREAM AND WETLAND CROSSINGS WILL BE PERFORMED UNDER JOINT PERMIT AUTHORIZATION.

NOTE: BARK CABIN RUN AND ITS TRIBUTARIES ARE LISTED AS CLASS A WILD TROUT STREAMS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND APRIL 1 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.

BENNYS RUN AND ITS TRIBUTARIES ARE LISTED AS NATIVE WILD TROUT STREAMS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND DECEMBER 31 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.

CALL BEFORE YOU DIG!
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LEGEND

- EXISTING CONTOURS
- GAS — PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- W — PROPOSED WATERLINE
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- COMPOST FILTER SOCK
- SOIL BOUNDARY
- ABC SOIL TYPE
- PROPERTY LINE
- MID STATE TRAIL
- EXISTING STREAM
- EXISTING WETLAND
- FORESTED RIPARIAN BUFFER
- FORESTED RIPARIAN BUFFER (DISTURBED)

SUMMARY OF MATERIALS

DESCRIPTION	QUANTITY
FILTER BAG (each)	4
STREAM CROSSING (ln-ft) (Pipelines)	75
STREAM CROSSING/BRIDGE BUILDING (each)	4
PUMP BY-PASSES (each)	4
COFFERDAMS (each)	8
TEMPORARY BRIDGE (ln-ft)	189
SEED, FERTILIZER, LIME (acres)	4.15
RIPARIAN BUFFER SEEDING (acres)	2.04
FORESTED RIPARIAN BUFFER PLANTING (acres)	1.23
12-INCH FILTER SOCK (ln-ft)	1,392
EROSION CONTROL BLANKET (sq. ft.)	87,964
TRENCH PLUGS (each)	30
WATERBARS (each)	26

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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ERIC DAVID DOUGHERTY — ENGINEER — PE-057537 — MAR 04 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS
Revised 12/01/23 Revised and labeled Temp. R/W, changed Perm. R/W color, revised Summary of Materials table, revised Riparian Buffers, added Mid State Trail & Exi. Rock Outcropping
Revised 03/04/24 Revised trout streams note to Class A wild streams, changed pipeline and waterline alignments and flipped permanent and temporary right-of-ways between Stations 41+00 to 74+00

SHEET 4 OF 9

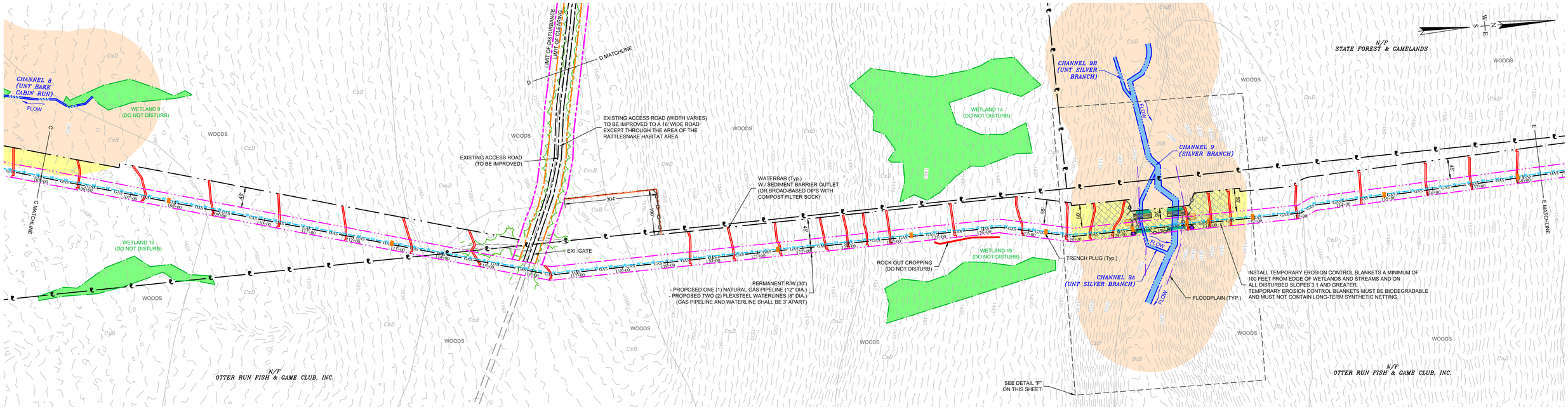
EROSION & SEDIMENTATION CONTROL PLAN

PHASE IV PIPELINE

Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

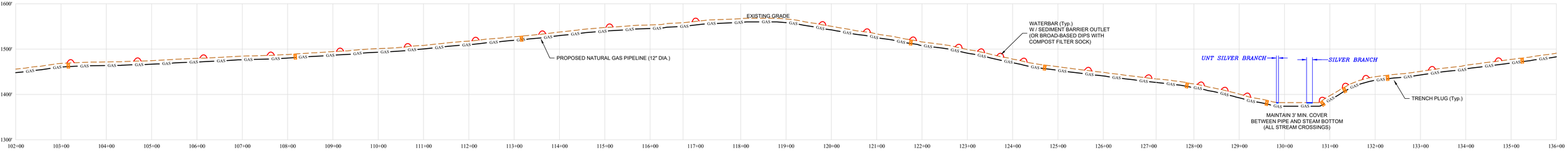
Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

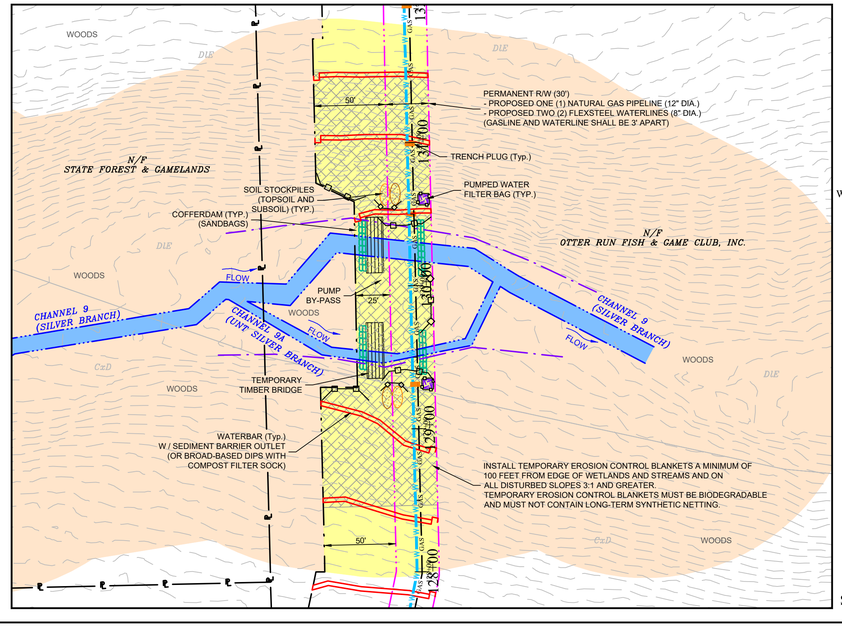


PLAN VIEW
SCALE: 1" = 100' (50' 100' 200' FEET)

Please note: Equipment may not be refueled within the jurisdictional floodway of any watercourse or within 50 feet of any body of water (025 PA code chapter 78a § 78a.6 (e)).



PROFILE
SCALE: HORZ: 1" = 100'
VERT: 1" = 100'



DETAIL "F"
SCALE: 1" = 50' (25' 50' 100' FEET)

SUMMARY OF MATERIALS	
DESCRIPTION	**QUANTITY**
FILTER BAG (each)	2
STREAM CROSSING (ln-ft) (Pipelines)	54
STREAM CROSSING/BRIDGE BUILDING (each)	1
PUMP BY-PASSES (each)	2
COFFERDAMS (each)	4
TEMPORARY BRIDGE (ln-ft)	78
SEED, FERTILIZER, LIME (acres)	5.49
RIPARIAN BUFFER SEEDING (acres)	0.60
FORESTED RIPARIAN BUFFER PLANTING (acres)	0.48
12-INCH FILTER SOCK (ln-ft)	395
TEMPORARY FENCING (ln-ft)	303
EROSION CONTROL BLANKET (sq. ft.)	19,712
TRENCH PLUGS (each)	22
WATERBARS (each)	27

NOTE: SILVER BRANCH AND ITS TRIBUTARIES ARE LISTED AS CLASS A WILD TROUT STREAMS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND APRIL 1 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.

NOTES: Waterbars with Sediment Barrier Outlets (or Broad-Based Dips with Compost Filter Sock) shall be installed as shown on the plans along the pipeline in accordance with the spacing indicated in the tables on Sheet 9.

Waterbar Alternative
Broad-Based Dips with Compost Filter Socks may be used in place of Waterbars on pipeline rights-of-way ***as field conditions dictate.***

Trench Plugs must be installed as shown on the plans and at the spacing shown on Sheet 9.

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Only weed free mulch shall be used in all disturbance areas.

ALL STREAM AND WETLAND CROSSINGS WILL BE PERFORMED UNDER JOINT PERMIT AUTHORIZATION.

LEGEND

- EXISTING CONTOURS
- GAS — PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- W — PROPOSED WATERLINE
- EXISTING ROAD
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- COMPOST FILTER SOCK
- ORANGE CONSTRUCTION FENCE
- SOIL BOUNDARY
- ABC SOIL TYPE
- PROPERTY LINE
- TREELINE
- EXISTING STREAM
- EXISTING WETLAND
- FORESTED RIPARIAN BUFFER
- FORESTED RIPARIAN BUFFER (DISTURBED)
- LIMIT OF CLEARING
- LIMIT OF DISTURBANCE

CALL BEFORE YOU DIG!
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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ERIC DAVID DOUGHERTY — ENGINEER — PE-057537 — MAR 04 2024

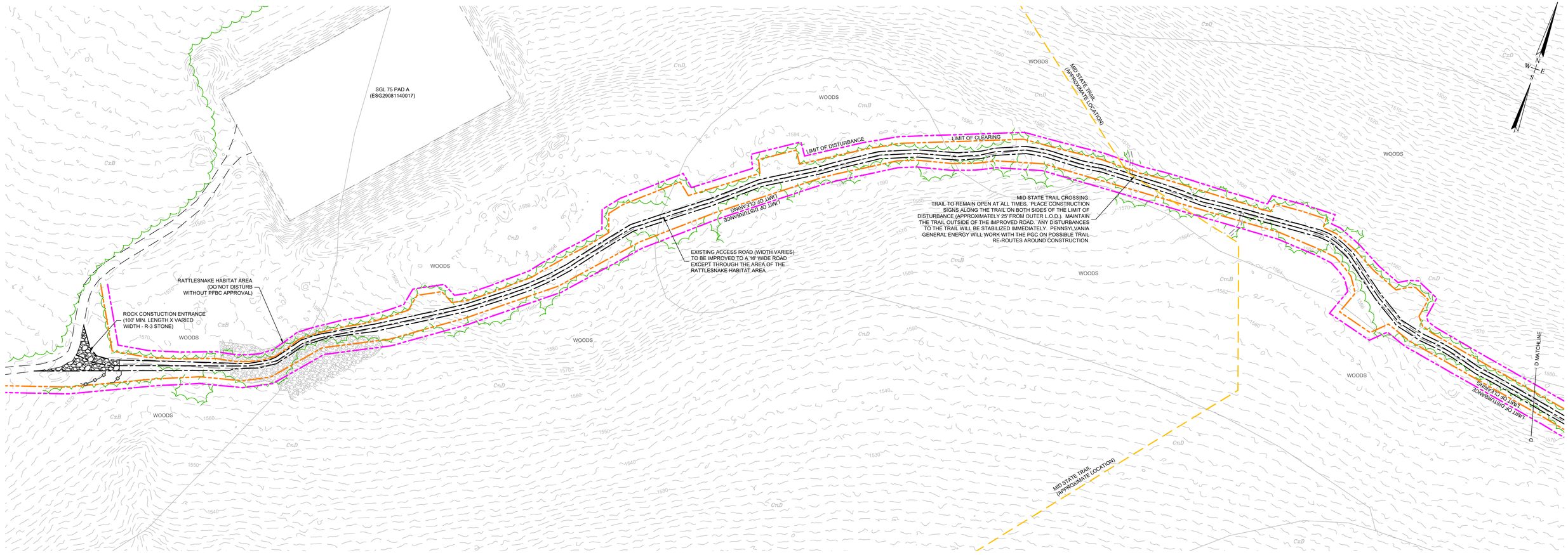
Eric David Dougherty
Professional Engineer
License # PE-057537

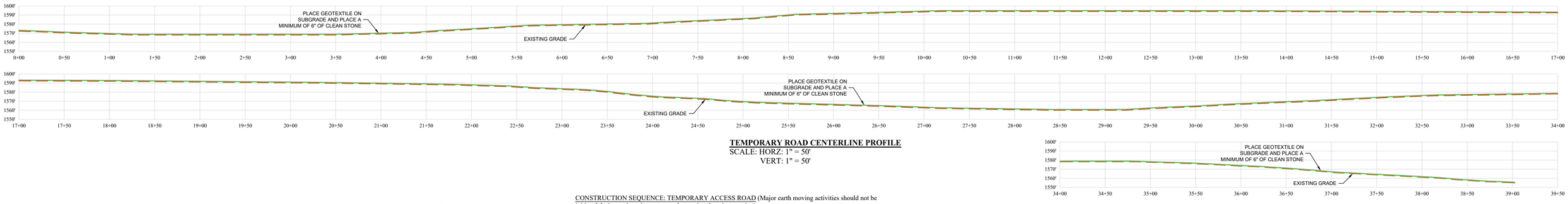
REVISIONS
Revised 12/01/23 Revised and labeled Temp. R/W, changed Perm. R/W color, revised Summary of Materials table, revised Riparian Buffers
Revised 03/04/24 Revised trout streams note to Class A wild streams

SHEET 5 OF 9
EROSION & SEDIMENTATION CONTROL PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

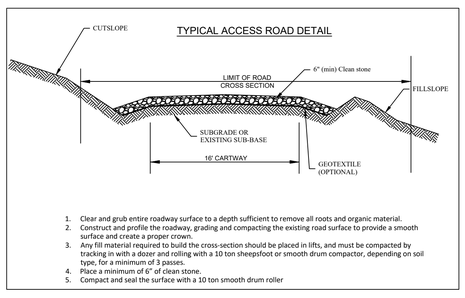
Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023





TEMPORARY ROAD CENTERLINE PROFILE
SCALE: HORZ: 1" = 50'
VERT: 1" = 50'



CONSTRUCTION SEQUENCE: TEMPORARY ACCESS ROAD (Major earth moving activities should not be initiated during major rainstorms or when spring thaw is occurring)

Perimeter erosion and sediment control measures will be installed or constructed and functional before site disturbance begins in the drainage areas to those control measures, with an exception of the deployment of the Compost Filter Socks, as they require access by a truck prior to installation. All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species.

1. Mark the Limit of Clearing within the project area. No equipment shall leave the Limit of Clearing.
2. Install Compost Filter Socks downslope of the Rock Construction Entrance, downslope of all proposed fills and at the locations shown on the plan, at the size specified and in accordance with the standard detail.
3. Construct the Rock Construction Entrance off of the existing Pad A access road.
4. Clear and grub the roadway surface to a depth sufficient to remove all roots and organic material. Clear and grub only the area of the access road which can be graded and stabilized in one day and/or can be stabilized prior to a rain event.
5. Grade the area of the proposed roadway to subgrade elevation.
6. Any fill material required to build the cross-section should be placed in lifts, and must be compacted by tracking in with a dozer and rolling with a 10 ton sheepsfoot or smoothdrum compactor, depending on soil type, for a minimum of 3 passes.
7. Place geotextile on the subgrade and place a minimum of 6" of clean stone.
8. Compact and seal the surface with a 10 ton smooth drum roller
9. Scarify, lime, fertilize, seed and mulch (weed free mulch only) all disturbed areas outside the stone access road per the specifications in this plan or suitable alternative.
10. All slopes 3:1 and greater shall be stabilized with temporary erosion control blankets or use soil binders and flocculants with polyacrylamides such as Flexterra, or a comparable alternative (see Table 11.7 on Sheet 9).
11. After final stabilization (70% minimum, uniform, perennial vegetative cover and/or permanent stabilization) has been achieved, temporary erosion and sedimentation control measures shall be removed.
12. Any waste material accumulated during construction, which will not be reused in later construction, shall be removed from the site and properly disposed of.

NOTE: Upon temporary cessation of an earth disturbance activity or any stage or phase of an activity where a cessation of earth disturbance activities will exceed 4 days, the site shall be immediately seeded, mulched, or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities.

SUMMARY OF MATERIALS

DESCRIPTION	QUANTITY
SEED, FERTILIZER, LIME (acres)	3.06
ROCK CONSTRUCTION ENTRANCE (each)	1
12-INCH FILTER SOCK (ln-ft)	108

The following invasive minimization practices shall be used:

1. All equipment must be cleaned prior to coming to site
2. Weed free mulch only should be used in all disturbed areas.

LEGEND

- EXISTING CONTOURS
- PROPOSED ACCESS ROAD
- EXISTING ACCESS ROAD (TO BE IMRPOVED)
- EXISTING WELL PAD
- SOIL BOUNDARY
- ABC SOIL TYPE
- PROPERTY LINE
- TREELINE
- LIMIT OF CLEARING
- LIMIT OF DISTURBANCE
- RATTLESNAKE HABIT AREA
- MID STATE TRAIL

SCALE: 1" = 100' 50' 100' 200' FEET

CALL BEFORE YOU DIG!
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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
MAR 04 2024

I do hereby certify to the best of my knowledge, information and belief, that the Erosion and Sedimentation Control and Site Restoration Plan and Post Construction BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS
Revised 12/01/23 Added Mid State Trail
Revised 03/04/24 Added Mid State Trail crossing note

SHEET 6 OF 9

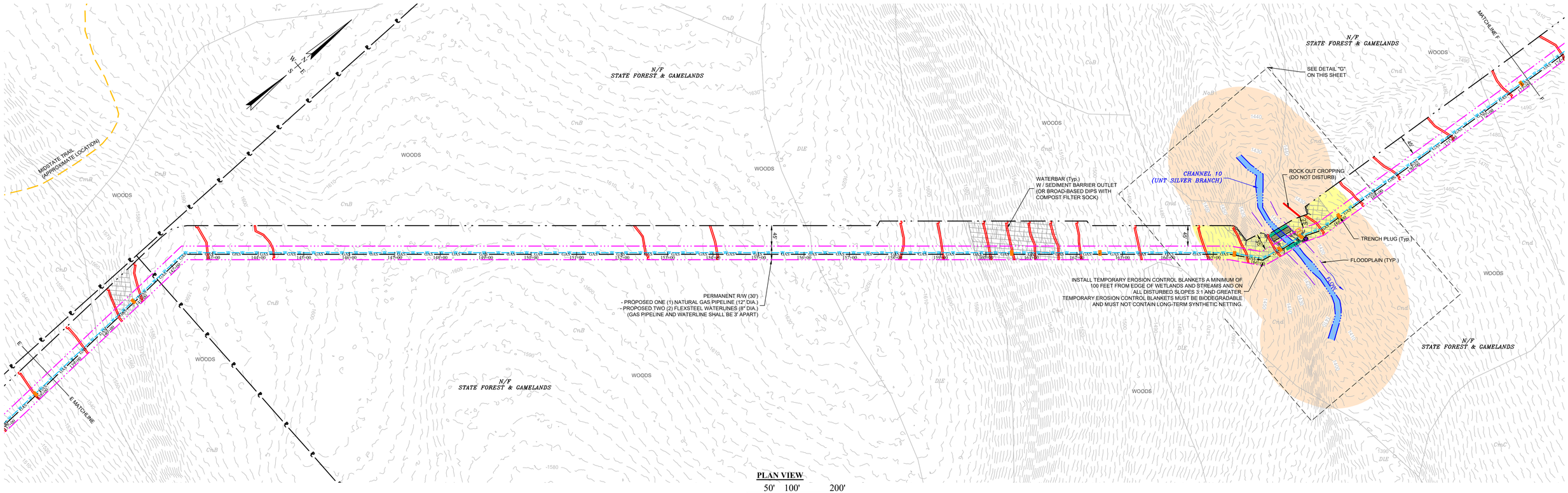
EROSION & SEDIMENTATION CONTROL PLAN

PHASE IV PIPELINE

Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

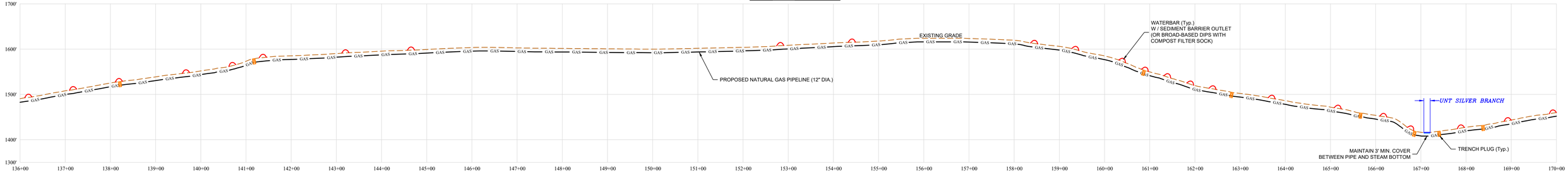
Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023



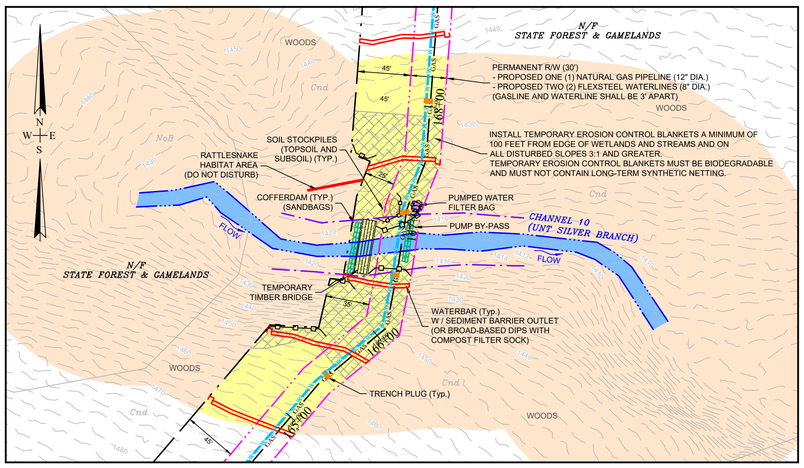
PLAN VIEW

SCALE: 1" = 100' (50' 100' 200' FEET)



PROFILE

SCALE: HORZ: 1" = 100'
VERT: 1" = 100'



DETAIL "G"

SCALE: 1" = 60' (30' 60' 120' FEET)

Please note: Equipment may not be refueled within the jurisdictional floodway of any watercourse or within 50 feet of any body of water (025 PA code chapter 78a § 78a.6 (e)).

NOTE: SILVER BRANCH AND ITS TRIBUTARIES ARE LISTED AS CLASS A WILD TROUT STREAMS. THEREFORE, NO CONSTRUCTION OR FUTURE REPAIR WORK SHALL TAKE PLACE IN OR ALONG THE STREAM CHANNELS BETWEEN OCTOBER 1 AND APRIL 1 WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE PENNSYLVANIA FISH AND BOAT COMMISSION.

SUMMARY OF MATERIALS

DESCRIPTION	QUANTITY
FILTER BAG (each)	1
STREAM CROSSING (In-ft) (Pipelines)	42
STREAM CROSSING/BRIDGE BUILDING (each)	1
PUMP BY-PASSES (each)	1
COFFERDAMS (each)	2
TEMPORARY BRIDGE (In-ft)	46
SEED, FERTILIZER, LIME (acres)	5.59
RIPARIAN BUFFER SEEDING (acres)	0.52
FORESTED RIPARIAN BUFFER PLANTING (acres)	0.41
12-INCH FILTER SOCK (In-ft)	183
EROSION CONTROL BLANKET (sq. ft.)	33,075
TRENCH PLUGS (each)	16
WATERBARS (each)	24

NOTES: Waterbars with Sediment Barrier Outlets (or Broad-Based Dips with Compost Filter Sock) shall be installed as shown on the plans along the pipeline in accordance with the spacing indicated in the tables on Sheet 9.

Waterbar Alternative
Broad-Based Dips with Compost Filter Socks may be used in place of Waterbars on pipeline rights-of-way ***as field conditions dictate.***

Trench Plugs must be installed as shown on the plans and at the spacing shown on Sheet 9.

Erosion Control Blankets must be installed a minimum of 100 feet from edge of wetlands and streams and on all disturbed slopes 3:1 and greater. Erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

Stumps are to remain within the forested riparian buffers (within the temporary right-of-way) at all pipeline stream crossings to maintain the stability of these stream embankments. Stumps will be cut flush with or ground slightly below the surface.

A Floodplain Analysis was completed to determine the floodplain boundary for each stream within the pipeline right-of-way. See Attachment M of the Joint Permit Application for the completed report.

All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species.

Only weed free mulch shall be used in all disturbance areas.

ALL STREAM AND WETLAND CROSSINGS WILL BE PERFORMED UNDER JOINT PERMIT AUTHORIZATION.

LEGEND

- EXISTING CONTOURS
- GAS — PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- W — PROPOSED WATERLINE
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- COMPOST FILTER SOCK
- SOIL BOUNDARY
- ABC SOIL TYPE
- PROPERTY LINE
- MID STATE TRAIL
- EXISTING STREAM
- EXISTING WETLAND
- FORESTED RIPARIAN BUFFER
- FORESTED RIPARIAN BUFFER (DISTURBED)

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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — ERIC DAVID DOUGHERTY — PE-057537 — MAR 04 2024

I do hereby certify to the best of my knowledge, information and belief, that the Erosion and Sedimentation Control and Site Restoration Plan and Post Construction BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS

Revised 12/01/23
Labeled Temp. R/W, changed Perm. R/W color, added Mid State Trail

Revised 03/04/24
Revised trout streams note to Class A wild streams

SHEET 7 OF 9

EROSION & SEDIMENTATION CONTROL PLAN

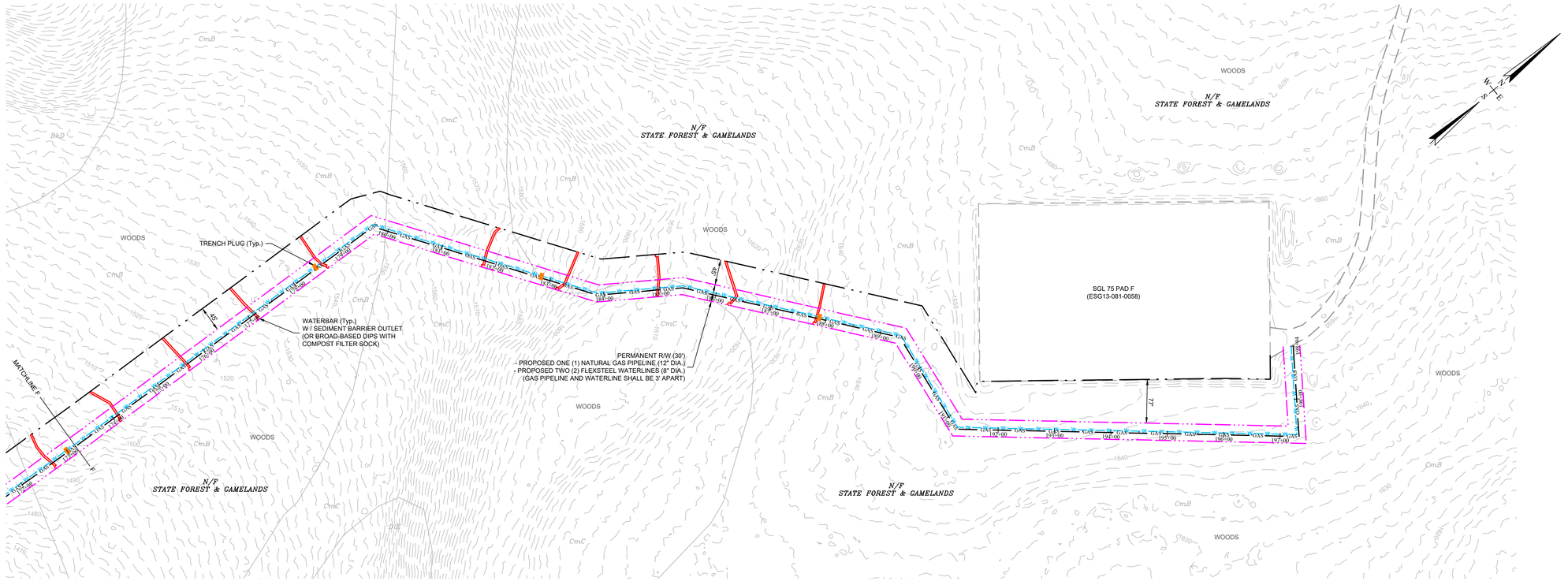
PHASE IV PIPELINE

Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:

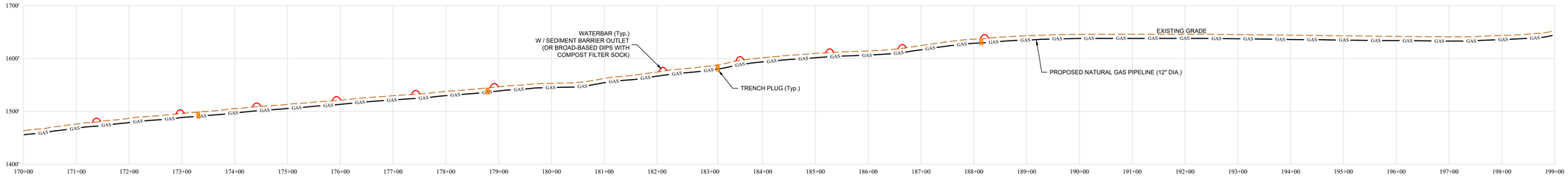
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023



PLAN VIEW

SCALE: 1" = 100' 50' 100' 200' FEET



PROFILE

SCALE: HORZ: 1" = 100'
VERT: 1" = 100'

NOTES: Waterbars with Sediment Barrier Outlets (or Broad-Based Dips with Compost Filter Sock) shall be installed as shown on the plans along the pipeline in accordance with the spacing indicated in the tables on Sheet 9.

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Stumps are to remain within the forested riparian buffers (within the temporary right-of-way) at all pipeline stream crossings to maintain the stability of these stream embankments. Stumps will be cut flush with or ground slightly below the surface.

A Floodplain Analysis was completed to determine the floodplain boundary for each stream within the pipeline right-of-way. See Attachment M of the Joint Permit Application for the completed report.

All equipment must be cleaned prior to mobilization to prevent spread of invasive plant species.

Only weed free mulch shall be used in all disturbance areas.

ALL STREAM AND WETLAND CROSSINGS WILL BE PERFORMED UNDER JOINT PERMIT AUTHORIZATION.

SUMMARY OF MATERIALS	
DESCRIPTION	**QUANTITY**
SEED, FERTILIZER, LIME (acres)	4.50
TRENCH PLUGS (each)	6
WATERBARS (each)	8

LEGEND

- EXISTING CONTOURS
- GAS — PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- W — PROPOSED WATERLINE
- EXISTING ROAD
- EXISTING WELL PAD
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- SOIL BOUNDARY
- ABC SOIL TYPE
- PROPERTY LINE

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
DEC 01 2023

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Eric David Dougherty
Professional Engineer
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REVISIONS
Revised 12/01/23 Labeled Temp. R/W, changed Perm. R/W color

SHEET 8 OF 9

EROSION & SEDIMENTATION CONTROL PLAN

PHASE IV PIPELINE

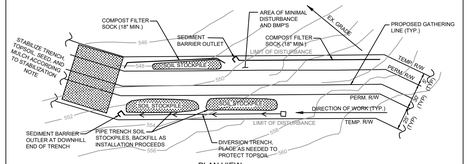
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

TYPICAL TRENCH E&S CONTROLS FOR AREAS OUTSIDE OF WETLANDS & STREAMS

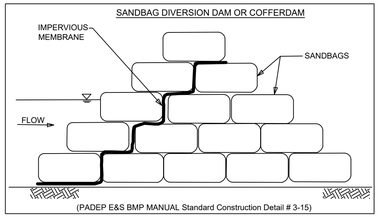


PLAN VIEW
N.T.S.

NOTES:

1. Compost Filter Socks (18" Min.) to be installed DOWN-GRADIENT of all exposed areas as work progresses, and continually kept down-gradient of all exposed trenches during construction operations. Upon backfilling of the trench, placement of topsoil, seeding, and mulching, the Filter Socks may be moved to the next appropriate location.
2. In areas where the pipeline crosses the slope contour at an angle, install the Compost Filter Socks parallel to the pipeline within the right-of-way and outlet the filter socks to Sediment Barriers. Spacing of Sediment Barriers shall be consistent with the spacing of temporary waterbars.
3. If the pipeline trench is to remain open for an extended period of time, or topsoil stockpiles are to be left for any amount of time, diversions trenches shall be constructed on the up-gradient side of the pipeline trench and/or stockpiles. Diversion trenches shall outlet to Sediment Barriers. As an alternative to diversion trenches, compost diversion socks may be used.
4. Any stockpile left for future use shall be immediately stabilized and shall have Compost Filter Socks placed down-gradient.
5. Breaks in soil stockpiles are to be installed as needed to prevent the impoundment of stormwater runoff.
6. When open-cut trenching across roadways, use 12" weighted Compost Filter Socks.

SANDBAG DIVERSION DAM OR COFFERDAM

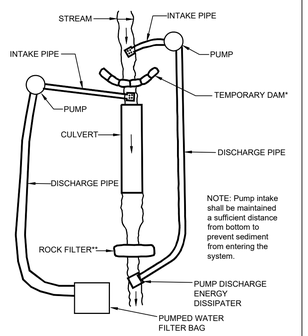


(PADEP E&S BMP MANUAL Standard Construction Detail # 3-15)

Maintenance Program
Monitoring and visual inspections will focus on erosion and sediment control measures and will be conducted on a weekly basis and following run-off events, until 70% or greater uniform perennial vegetative cover has been established and/or permanent stabilization is achieved. Any deficiencies observed in erosion and sediment control measures will be corrected immediately. Sediments from BMPs shall be removed as specified in the maintenance for that BMP and spread on-site then stabilized according to the permanent stabilization specifications. If no suitable areas are available on-site, then the sediments shall be disposed of at a site(s) with an approved erosion and sediment control plan that meets the conditions of Chapter 102 and/or other State and Federal regulations.

Materials Disposal
All building materials and wastes must be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code Chapter 260, §§260.1 et seq., 271.1, and 287.1 et. seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site. The procedures which ensure that the proper measures for the recycling or disposal of materials associated with or from the project site will be undertaken in accordance with 25 Pa. Code, Chapter 78.

TEMPORARY COFFERDAM AND PUMP BYPASS AROUND IN-CHANNEL WORK AREAS



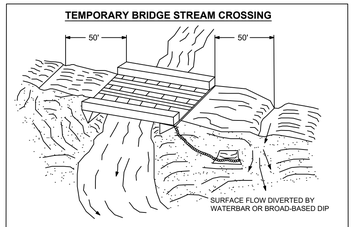
NOTE: Pump intake shall be maintained a sufficient distance from bottom to prevent sediment from entering the system.

* Sandbags, jersey barriers, or other non-erosive material, no earth fill. Do not excavate a sump for the pump intake.

** See Standard Construction Detail # 4-14 in the PADEP Erosion and Sediment Control Best Management Practices (BMP) Manual.

(PADEP E&S BMP MANUAL Figure 3.11)

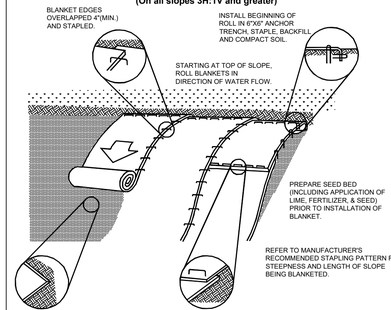
TEMPORARY BRIDGE STREAM CROSSING



Waterbars and broad-based dips shall discharge to sediment removal facilities.

(PADEP E&S BMP MANUAL Figure 3.4)

EROSION CONTROL BLANKET INSTALLATION
(On all slopes 3H:1V and greater)



Seed and soil amendments shall be applied according to the rates in the plan drawings prior to installing the blanket.

Provide anchor trench at toe of slope in similar fashion as at top of slope.

Slope surface shall be free of rocks, clods, sticks, and grass.

Blanket shall have good continuous contact with underlying soil throughout entire length. Lay blanket loosely and stake or staple to maintain direct contact with soil. Do not stretch blanket.

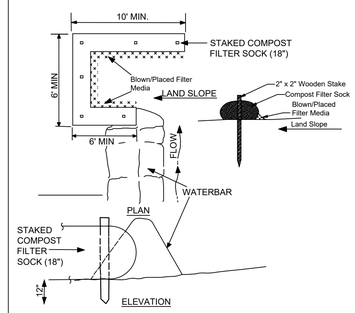
Stapling of the blanket shall be done in accordance with the manufacturer's recommendations.

Blanketed areas shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 70% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 5 calendar days.

Blankets must be installed on all disturbed slopes 3:1 and greater, must be biodegradeable and must not contain long-term synthetic netting.

(PADEP E&S BMP MANUAL Standard Construction Detail # 11-1)

SEDIMENT BARRIER PROTECTION AT WATERBAR OUTLET
(EV & HQ WATERSHEDS)



(MODIFIED FROM OPERATORS MANUAL Figure 4-12 FOR "EV" & "HQ" WATERSHEDS)

TRENCH PLUG INSTALLATION

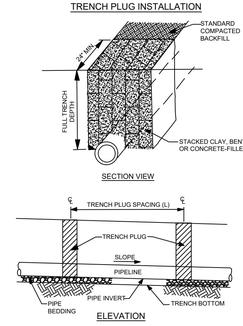


Table 13.1
Required Maximum Spacing and Materials for Trench Plugs

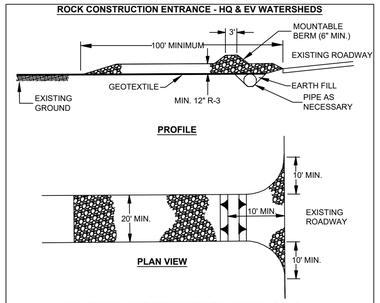
Trench Slope (%)	Spacing L (FT)	Plug Material
<5	1,000	*Clay, Bentonite, or Concrete Filled Sacks
5-15	500	*Clay, Bentonite, or Concrete Filled Sacks
15-25	300	*Clay, Bentonite, or Concrete Filled Sacks
25-35	200	*Clay, Bentonite, or Concrete Filled Sacks
35-100	100	*Clay, Bentonite, or Concrete Filled Sacks
>100	50	Cement Filled Bags (Wetted) or Mortared Stone

TOPSOIL MAY NOT BE USED TO FILL SACKS.

Impervious Trench Plugs are required for all stream, river, wetland, or other water body crossings regardless of Trench Slope.

(PADEP E&S BMP MANUAL Standard Construction Detail # 13-4)

ROCK CONSTRUCTION ENTRANCE - HQ & EV WATERSHEDS



This Rock Construction Entrance is applicable for projects within HQ and EV Watersheds. The Rock Construction Entrance is to be a minimum 100' in length and the rock sized increased to a R-3 (Min.).

Topsoil should be removed prior to installation of rock construction entrance.

Extend rock over full width of entrance and in all instances to a 20' Min. Width.

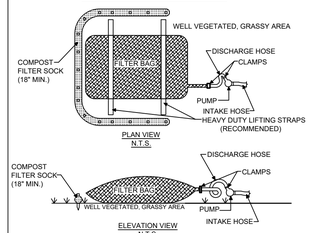
Runoff shall be diverted from roadway to a suitable sediment removal BMP prior to entering Rock Construction Entrance.

Mountable berm should be installed wherever optional culvert pipe is used. Pipe to be sized appropriately for size of ditch being crossed.

MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. All sediment deposited on paved roadways shall be removed and returned to the construction site immediately. If excessive amounts of sediment are being deposited on roadway, extend length of rock construction entrance by 50 foot increments until condition is alleviated or install wash rack. Washing the roadway or sweeping the deposits into roadway ditches, sewer, culverts, or other drainageways is not acceptable.

(PADEP E&S BMP MANUAL Standard Construction Detail # 3-1)

PUMPED WATER FILTER BAG



Low Volume Filter bags shall be made from non-woven geotextile material sewn with high strenght, double stiched "J" type seams. They shall be capable of trapping particles larger than 150 microns. High Volume Filter Bags may be made from woven geotextiles that meet the following standards:

Property	Test Method	Minimum Standard
Avg. Wide Width Strenght	ASTM D-4884	60 lb/in
Grab Tensile	ASTM D-4632	205 lb
Puncture	ASTM D-4833	110 lb
Mullen Burst	ASTM D-3786	350 lb
UV Resistance	ASTM D-4355	70 %
AOS (% Retained)	ASTM D-4751	80 Sieve

A suitable means of accessing the bag with machinery required for disposal purposes must be provided. Filter bags shall be replaced when they become 1/2 full. Spare bags shall be kept available for replacement of those that have failed or are full. It is recommended that bags be placed on straps to facilitate removal.

Bags shall be located in well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile underlayment and flow path shall be provided. Bags may be placed on filter stone to increase discharge capacity. Bags shall not be placed on slopes greater than 5%. For slopes exceeding 5%, clean rock or other non-erodible and non-polluting material may be placed under the bag to reduce slope steepness.

No downslope sediment barrier is required for most installations. Compost berm or compost filter sock should be installed below bags located within 50 feet of receiving stream or where grassy area is not available. A compost berm or compost filter sock shall be placed below any bag discharging to a special protection surface water.

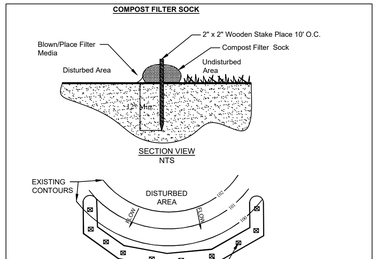
The pump discharge hose shall be inserted into the bags in the manner specified by the manufacturer and securely clamped. A piece of PVC pipe is recommended for this purpose.

The pumping rate shall be no greater than 750 gpm or 1/2 the maximum specified by the manufacturer, whichever is less. Pump intakes should be floating and screened.

Filter bags shall be inspected daily. If any problem is detected, pumping shall cease immediately and not resume until the problem is corrected.

(PADEP E&S BMP MANUAL Standard Construction Detail # 3-16)

COMPOST FILTER SOCK



Compost Sock shall meet the following standards:

Organic Matter Content -- 80% - 100% (dry weight basis)
Organic Portion -- Fibrous and elongated
pH -- 5.5 - 8.0
Moisture Content -- 35% - 55%
Particle Size -- 98% pass through 1" screen
Soluble Salt Concentration -- 5.0 dS Maximum

Compost Filter Sock Shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment. Maximum slope length above any sock shall not exceed that shown on Figure 4.2 in the PADEP Erosion and Sediment Control Best Management Practice (BMP) Manual.

Traffic shall not be permitted to cross filter socks.

Accumulated Sediment shall be removed when it reaches 1/2 the above ground height of the sock and disposed in the manner described elsewhere in the plan.

Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to the manufacturer's specifications or replaced within 24 hours of inspection.

Biodegradable filter sock shall be replaced after 6 months; photodegradable socks after 1 year. Polypropylene socks shall be replaced according to manufacturer's recommendations.

Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.

(PADEP E&S BMP MANUAL Standard Construction Detail # 4-1)

Broad-Based Dip with Compost Filter Socks Installation on a Utility Line Right-of-Way

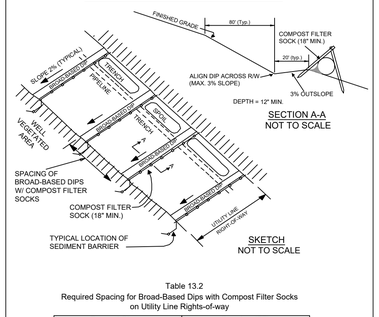


Table 13.2
Required Spacing for Broad-Based Dips with Compost Filter Socks on Utility Line Rights-of-way

Percent Slope	Spacing (FT)
<5	250
5 - 15	150
15 - 30	100
>30	50

WATERBAR ALTERNATIVE

1. Broad-Based Dips with Compost Filter Socks may be used in place of Waterbars on pipeline rights-of-way as field conditions dictate.
2. Compost Filter Socks and Sediment Barrier Outlets shall remain in place until final stabilization (70% minimum vegetative coverage) has been achieved; at which point these sediment control BMPs may be removed.

Waterbar Installation on a Utility Line Right-of-Way

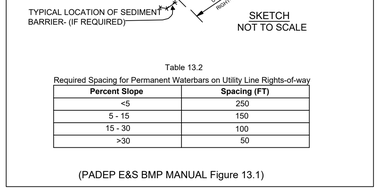
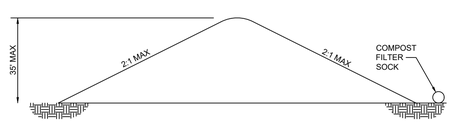


Table 13.2
Required Spacing for Permanent Waterbars on Utility Line Rights-of-way

Percent Slope	Spacing (FT)
<5	250
5 - 15	150
15 - 30	100
>30	50

(PADEP E&S BMP MANUAL Figure 13.1)

TEMPORARY TOPSOIL STOCKPILE
N.T.S.



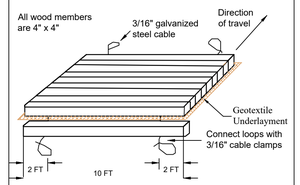
MAINTENANCE

1. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter.
2. Compost Filter Socks shall be installed at the downslope side of the topsoil stockpile.
3. Topsoil stockpiles shall be temporarily stabilized with seed and mulch.
4. Topsoil stockpile locations shall be provided where indicated on the plan.

NOTE

The contractor may designate topsoil stockpile locations within the right-of-way providing Compost Filter Socks on downslope side of location.

TYPICAL WOOD MAT FOR WETLAND CROSSING



A geotextile underlayment shall be used under the wood mat.

(PADEP E&S BMP MANUAL Figure 3.7)

CALL BEFORE YOU DIG!
PA LAW REQUIRES
3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
1-800-242-1776

STABILIZATION (Non-riparian and Non-wetland areas) (For use on DCNR grounds)

Temporary stabilization will consist of seeding with Annual Rye Grass (40 lbs./acre), Oats (95 lbs./acre), or Wheat (168 lbs./acre). Mulching can also provide temporary stabilization.

Disturbed areas will be permanently seeded with the following seed mixtures dependent upon slope or suitable alternative.

BOF General Native/Non-Native Seed Mix

Areas with Less Than 15% Slope

3 tons/acre	Lime
500 lb/acre	Fertilizer (10-20-20)
2 lb/acre	Timothy (Phleum pretense)
6 lb/acre	Perennial ryegrass (Lolium perenne)
6 lb PLS/acre	Virginia wildrye (Elymus virginiana)
2 lb PLS acre	Little bluestem (Schizachyrium scoparius)
2 lb PLS/acre	Big bluestem (Andropogon gerardii)
6 lb/acre	White clover (Trifolium repens)
4 lb/acre	Partridge pea (Chamaecrista fasciculata)
0.5 lb/acre	Black-eyed susan (Rudbeckia hirta)

Areas with Greater Than 15 % Slope

3 tons/acre	Lime
500 lb/acre	Fertilizer (10-20-20)
6 lb/acre	Timothy (Phleum pretense)
4 lb/acre	Perennial ryegrass (Lolium perenne)
4 lb PLS/acre	Virginia wildrye (Elymus virginiana)
3 lb PLS/acre	Little bluestem (Schizachyrium scoparius)
3 lb PLS/acre	Sig bluestem (Andropogon gerardii)
3 lb PLS/acre	Indiangrass (Sorghastrum nutans)
6 lb/acre	White clover (Trifolium repens)
4 lb PLS/acre	Deertongue (Dicanthelium clandestinum)
2 lb/acre	Partridge pea (Chamaecrista fasciculata)
0.5 lb/acre	Black-eyed susan (Rudbeckia hirta)

Spring oats or grain rye at a rate of one bushel per acre

A nurse crop of Annual Rye Grass, Spring Oats, or Winter Rye as specified in the temporary stabilization above shall be planted with all permanent seeding mixtures.

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary seeding and mulch at 3 tons per acre.

A soil test is encouraged to determine the appropriate application of soil amendments. In lieu of a soil test, prior to seeding, lime and fertilizer will be applied. Fertilizer (10-20-20) will be applied at the rate of 500 pounds per acre. Lime will be applied at the rate of 3 tons per acre. After seeding, the entire disturbed area will be straw mulched at the rate of 3 tons per acre. Temporary erosion control blankets or other suitable alternatives will be used on slopes 3:1 and greater. Temporary erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

After seeding, the entire disturbed area will be mulched at the rate of 3 tons per acre. Where seeding will not be established prior to winter, additional mulch shall be applied.

Temporary erosion control blankets or other suitable alternatives will be used on slopes 3:1 and greater.

In the course of the earth movement activities and/or drilling operations, unanticipated conditions may require the revision of the plan. If changes are required, the preparer or company field representative will revise the plan and notify the PA Department of Environmental Protection of changes in a timely manner.

STABILIZATION (Non-Riparian and Non-wetland Areas) (For use on privately owned grounds)

Temporary stabilization will consist of seeding with Annual Rye Grass (40 lbs./acre), Spring Oats (96 lbs./acre - Spring and Summer planting), or Winter Rye (168 lbs./acre - Fall plantings). Mulching can also provide temporary stabilization.

Disturbed areas will be permanently seeded based on site conditions and seasonal considerations. Table 1 below provides a listing of recommended permanent seed mixtures for cool and warm seasons, while Table 2 provides recommended seed mixtures for stabilizing disturbed areas.

Table 1: Recommended Permanent Seed Mixtures Cool and Warm Season Grass

Mixture Number	Season	Species	Seeding Rate (lb./ac.)
1	Cool	Tall fescue, or	79
		Fine fescue, plus	46
		Redtop, or	4
		Perennial ryegrass, plus	19
		Birdsfoot trefoil	8
2	Cool	Birdsfoot trefoil, plus	8
		Tall fescue,	40
3	Cool	Orchardgrass, or	26
		Bromegrass, plus	33
		Birdsfoot trefoil	8
4	Warm	Flatpea, plus	27
		Tall fescue, or	26
		Perennial ryegrass,	25
5	Warm	Deertongue, plus	21
		Birdsfoot trefoil	8
6	Warm	Switchgrass, or	15
		Big Bluestem, plus	15
		Birdsfoot trefoil	8

Table 2: Recommended Seed Mixtures for Stabilizing Disturbed Areas

Site Conditions	Seed Mixture (Select One Mixture)
Cut Slopes and Fills (not mowed)	
Well-drained	2, 4, or 6
Variable drainage	2
Cut Slopes and Fills (mowed)	1
Cut Slopes and Fills (grazed/hay)	1, 2, or 3
Gullies and Eroded Areas	2 or 6
Erosion Control BMPs	
Channels, Drainage Ditches, Trap embankments, etc.	1 or 2
For hay or silage	2 or 3
Right-of-way	
Well-drained	4 or 6
Variable drainage	2
Well-drained areas for grazing/hay	2 or 3

A nurse crop of Annual Rye Grass, Spring Oats, or Winter Rye as specified in the temporary stabilization above shall be planted with all permanent seeding mixtures.

Permanent seeding shall occur during the following time periods:
March 15 to June 1, or
August 1 to October 15
All other times should receive temporary seeding and mulch at 3 tons per acre.

STABILIZATION (Forested Riparian Buffer Areas)

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary stabilization.

After seeding, the entire disturbed area shall be mulched at a rate of 3 tons per acre.

Supplemental planting will be utilized as needed. Substitutions native to USDA Hardiness Zones 5a and 6b are acceptable.

The following planting plan shall be used for all Riparian Buffer Areas:

Seed Mix for Riparian Area
(20 lbs/acre or ½ lb per 1,000 ft2 with a cover crop at 30 lbs per acre)

ERNMX-178: Riparian Buffer Mix or suitable alternative

31.2% Panicum clandestinum, Tioga (Deertongue, Tioga)
20.0% Elymus virginicus, PA Ecotype (Virginia Wildrye, PA Ecotype)
11.8% Andropogon gerardi, 'Niagara' (Big Bluestem, 'Niagara')
10.5% Sorghastrum nutans, 'Tomahawk' (Indiangrass, 'Tomahawk')
5.0% Panicum virgatum, 'Shelter' (Switchgrass, 'Shelter')
4.0% Chamaecrista fasciculata, PA Ecotype (Partridge Pea, PA Ecotype)
4.0% Verbena hastata, PA Ecotype (Blue Vervain, PA Ecotype)
3.0% Juncus effusus (Soft Rush)
3.0% Rudbeckia hirta, Coastal Plain NC Ecotype
(Blackeyed Susan, Coastal Plain NC Ecotype)
2.0% Heliopsis heianthoides, PA Ecotype (Oxeye Sunflower, PA Ecotype)
1.0% Asclepias incarnata, PA Ecotype (Swamp Milkweed, PA Ecotype)
0.9% Aster umbellatus, PA Ecotype (Flat Topped White Aster, PA Ecotype)
0.7% Aster lateriflorus (Calico Aster)
0.7% Eupatorium perfoliatum, PA Ecotype (Boneset, PA Ecotype)
0.5% Helenium autumnale, PA Ecotype (Common Sneezeweed, PA Ecotype)
0.5% Monarda fistulosa, Fort Indiantown Gap-PA Ecotype
(Wild Bergamot, Fort Indiantown Gap-PA Ecotype)
0.5% Vernonia noveboracensis, PA Ecotype (New York Ironweed, PA Ecotype)
0.4% Solidago patula, PA Ecotype (Roughleaf Goldenrod, PA Ecotype)
0.3% Lobelia siphilitica, PA Ecotype (Great Blue Lobelia, PA Ecotype)

Supplemental Native Woody Tree & Shrub Planting Stock Density Rates for Forested Riparian Areas

Planting Stock Type for Native Woody Plants	Plant Spacing O.C. (Feet)	Approximate Average Stems/Acre
Potted Plants (1 to 2 gallon)	14-16	400
Bare Root Seedlings	6-10	700

Planting Species List for Forested Riparian Areas

Acer rubrum	Red Maple	Potted
Acer saccharum	Sugar Maple	Potted
Quercus prinus (montana)	Chestnut Oak	Potted
Pinus strobus	White Pine	Potted
Kalmia latifolia	Mountain laurel	Potted
Vaccinium angustifolium	Lowbush blueberry	Potted

Supplemental Planting Species List for Forested Riparian Areas
(If species from above are not available)

Acer saccharinum	Silver Maple	Potted	*Quercus rubra*	Northern Red Oak	Potted
Aronia melanocarpa	Black Chokeberry	Potted	*Quercus alba*	White Oak	Potted
Juglans nigra	Cottonwood	Potted	*Vaccinium sp.*	Blueberry	Potted
Liquidamber styraciflua	Sweet Gum	Potted	*Viburnum lentago*	Nannyberry	Potted

Riparian Forested Buffer Monitoring Notes

1. All Riparian Buffer Tree Planting Areas shall be monitored annually for a minimum of 5 years following installation as specified on the Wetland And Riparian Buffer Planting Site Plan Phase IV Pipeline, with a report submitted to PA DEP annually.
2. Each monitoring event/report shall document the following:
   - Presence of any plant species categorized as noxious or invasive within Pennsylvania shall be identified and eradicated.
   - The survival rate of native tree/shrub installations should achieve 85% survival following year-1 or supplemental planting will be required.
   - Native tree/shrub installations shall achieve 60% uniform canopy cover by year-5 or supplemental planting will be required.

STABILIZATION (WETLAND AREAS)

All wetland areas shall be immediately stabilized by permanent seeding, if possible, following disturbance. Temporary stabilization shall consist of straw mulch at a rate of 3 tons per acre if outside the recommended permanent seeding dates.

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary stabilization.

After seeding, the entire disturbed area shall be mulched at a rate of 3 tons per acre.

Supplemental planting will be utilized as needed. Substitutions native to USDA Hardiness Zones 5a and 6b are acceptable.

The following planting plan shall be used for all Wetland Areas:

Seed Mix for Wetland Area (20 lbs/acre or ½ lb per 1,000 ft2)

ERNMX-120: OBL-FACW Perennial Food & Cover Wetland Mix or suitable alternative

20.0% Carex vulpinoidea, PA Ecotype (Fox Sedge, PA Ecotype)
20.0% Elymus virginicus, Madison-NY Ecotype
(Virginia Wildrye, Madison-NY Ecotype)
15.0% Panicum clandestinum, Tioga (Deertongue, Tioga)
12.5% Carex lupulina, PA Ecotype (Hop Sedge, PA Ecotype)
12.5% Carex lurida, PA Ecotype (Lurid Sedge, PA Ecotype)
11.5% Carex scoparia, PA Ecotype (Blunt Broom Sedge, PA Ecotype)
3.0% Juncus effusus (Soft Rush)
2.0% Carex stipata, PA Ecotype (Awl Sedge, PA Ecotype)
2.0% Leersia oryzoides, PA Ecotype (Rice Cutgrass, PA Ecotype)
1.0% Carex crinita, PA Ecotype (Fringed Sedge, PA Ecotype)
0.5% Scirpus cyperinus, PA Ecotype (Woolgrass, PA Ecotype)

Supplemental Native Woody Trees & Shrub Planting Stock Density Rates for Wetland Areas

Planting Stock Type for Native Woody Plants	Plant Spacing (O.C. (Feet)	Approximate Average Stems/Acre
Potted Plants (1 to 2 gallons)	14-16	400
Bare Root Seedlings	6-10	700
Live Stakes	6-10	700

Planting Species List for Wetland Areas

Acer rubrum	Red Maple	Potted
Acer saccharum	Sugar Maple	Potted
Betula nigra	River Birch	Potted
Quercus palustris	Pin Oak	Potted
Photinia (Aronia) melanocarpa	Black Chokeberry	Potted
Kalmia latifolia	Mountain Laurel	Potted
Vaccinium corymbosum	Highbush blueberry	Potted

Supplemental Planting Species List for Wetland Areas
(If species from above are not available)

Acer saccharinum	Silver Maple	Potted
Ilex verticillata	Winterberry Holly	Potted
Lindera benzoin	Spicebush	Potted
Physocarpus opulifolius	Ninebark	Potted
Platanus occidentalis	American Sycamore	Potted
Quercus bicolor	Swamp White Oak	Potted
Rosa palustris	Swamp Rose	Potted
Sambucus canadensis	Elderberry	Potted
Viburnum lentago	Nannyberry	Potted
Alnus sp.	Alder	Live Stakes
Cephalanthus occidentalis	Buttonbush	Live Stakes
Cornus amomum	Silky Dogwood	Live Stakes
Salix sp.	Willow	Live Stakes
Carpinus caroliniana	American Hornbeam	Live Stakes
Betula alleghaniensis	Yellow Birch	Live Stakes

I do hereby certify to the best of my knowledge, information and belief, that the Erosion and Sedimentation Control and Site Restoration Plan and Post Construction BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ERIC DAVID DOUGHERTY — ENGINEER — PE-057537 — MAR 04 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS
Revised 12/01/23 Revised planting species for Forested Riparian Buffer areas and Wetland areas
Revised 03/04/24 Added Riparian Forested Buffer Monitoring Note

SHEET 9 OF 9
EROSION & SEDIMENTATION CONTROL PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

ATTACHMENT N:

HYDROLOGIC AND HYDRAULIC ANALYSIS
(FLOODPLAIN ANALYSIS)

Floodplain Analysis
Phase IV Pipeline
Stream Crossings

Joint Permit Application

Cummings Township and McHenry Township
Lycoming County, PA

August 2023

Prepared for:

PGE Pennsylvania General Energy Co., LLC

Prepared by:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Engineer's Seal & Certification

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

FLOODPLAIN ANALYSIS

PHASE IV PIPELINESTREAM CROSSINGS

Overview:

This project will consist of the construction of 19,925 linear feet of 12" natural gas pipeline and 19,887 linear feet of two (2) 8" flexsteel waterlines within a 30' wide permanent right-of-way and temporary right-of-way that varies in width. Nine (9) streams and one (1) wetland will be crossed by the pipelines requiring a joint permit. All stream and wetland crossings will be open cut. An existing access road will also be improved as part of the project. The total disturbance area, which includes the proposed pipeline right-of-way area and workspace for the access road is 42.60 acres.

There have been no detailed FEMA Flood Insurance Studies performed along the various streams to be impacted and no floodplain boundary has been established. The purpose of this evaluation is to determine the floodplain boundary for each stream proposed to be impacted or potentially impacted.

Detailed Site Conditions:

The Phase IV Pipelineis located almost entirely in woodland areas. Soil types within the right-of-way for the waterline include Clymer channery loam, Clymer very stony loam, Cookport loam, Cookport channery loam, Dekalb very stony sandy loam, Dekalb and Lehew very stony sandy loams, and Leck kill channery silt loam.

Hydrologic Analysis:

The proposed crossings were evaluated based on drainage areas and land covers observed in available mapping. Drainage areas for blueline streams were developed through USGS StreamStats (See Appendix B). Smaller streams were developed from PAMAP LiDAR contours with a 2-foot contour interval. Land covers were based on the most recent available aerial photography.

Rainfall information is based on NOAA Atlas 14 Point Precipitation Frequency estimates. The crossings were evaluated for the anticipated peak discharge rate for the 100-year, 24-hour storm events based on the following rainfall amounts:

100-year/24-hour event: 5.52 inches

The anticipated runoff peak rates for blueline streams were taken from USGS StreamStats. Anticipated runoff peak discharge rates for smaller streams were calculated using the SCS TR-55/TR-20 computations in HydroCAD 10.2 (See Appendix B).

Land covers used in this evaluation include Woods in good condition. Soils are in Hydrologic Soils Groups 'B' and 'D'.

The following table provides the size and estimated runoff for each stream channel proposed to be impacted by this waterline construction:

Channel No.	Channel Name	Drainage Area	Discharge Rate (CFS)	Source of Discharge Rate
Channel 1	Hackett Fork	69.7 Acres	41.62	HydroCAD
Channel 3	Ott Fork	0.68 Sq. Mile	339	StreamStats
Channel 4	UNT Bennys Run	3.03 Acres	2.26	HydroCAD
Channel 5	UNT Bennys Run	8.10 Acres	7.66	HydroCAD
Channel 6	Bark Cabin Run	2.04 Sq. Mile	605	StreamStats
Channel 9	Silver Branch	1.91 Sq. Mile	653	StreamStats
Channel 10	UNT Silver Branch	1.63 Sq. Mile	800	StreamStats
Channel 12	UNT Bennys Run	1.83 Acres	1.19	HydroCAD

Hydraulic Analysis:

Floodplain boundaries were developed for each watercourse using HEC-RAS. Cross sections for each watercourse were created from PAMAP LiDAR Digital Elevation Models. See Appendix A for Floodplain Analysis maps showing each stream with the HEC-RAS cross sections and generated floodplain boundaries.

Manning's roughness coefficients used for the stream channels are based on field observations and are conservatively set as follows:

Main Channel (Clean, winding, some pools and shoals): n = 0.04
Floodplain (Heavy stand of timber, little undergrowth): n = 0.10

See Appendix C for summary output tables for each watercourse.

Appendix A:

Floodplain Analysis Maps

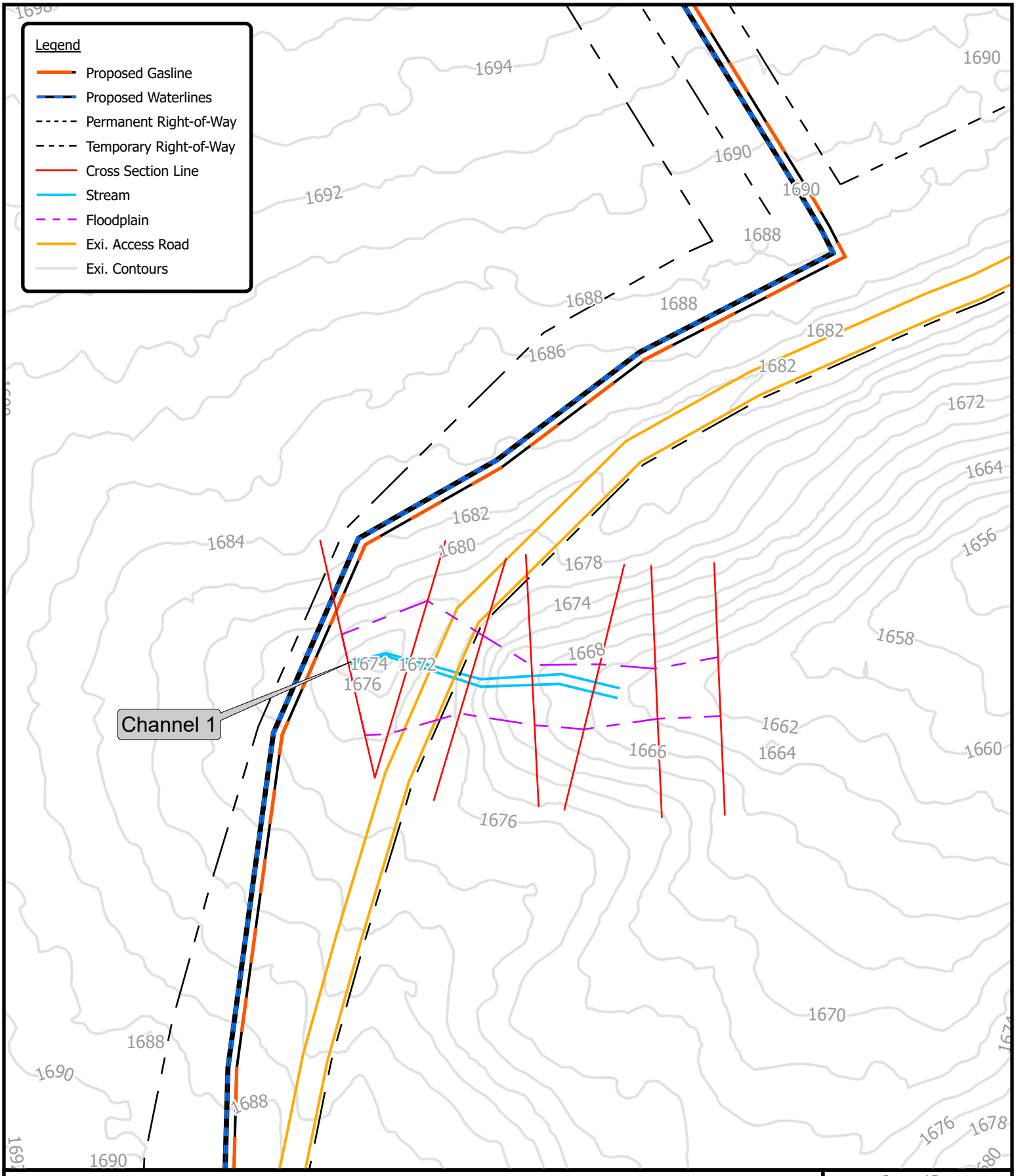


Figure 3A: Floodplain Analysis Map for the Phase IV Pipeline Channel 1

Cummings and McHenry Townships, Lycoming County, PA

N

Central Coordinates:
41.4073°N 77.3867°W

0 50 100Feet

USGS Quadrangle
Cammal

Prepared For:
EQT

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

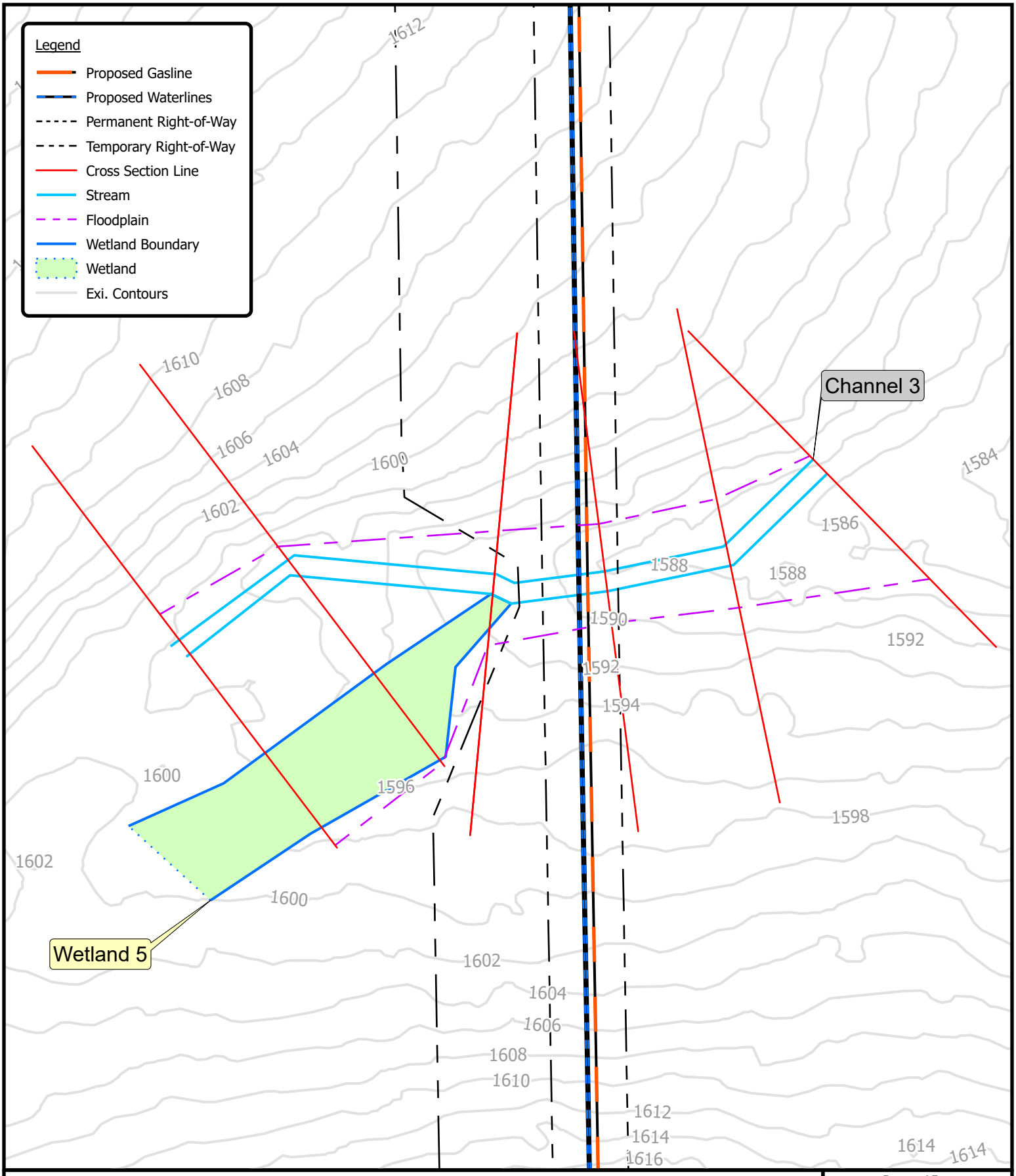


Figure 3B: Floodplain Analysis Map for the Phase IV Pipeline Channel 3

Cummings and McHenry Townships, Lycoming County, PA

N

Central Coordinates:
41.4141°N 77.3893°W

0 50 100Feet

USGS Quadrangle
Cammal

Prepared For:
EQT

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

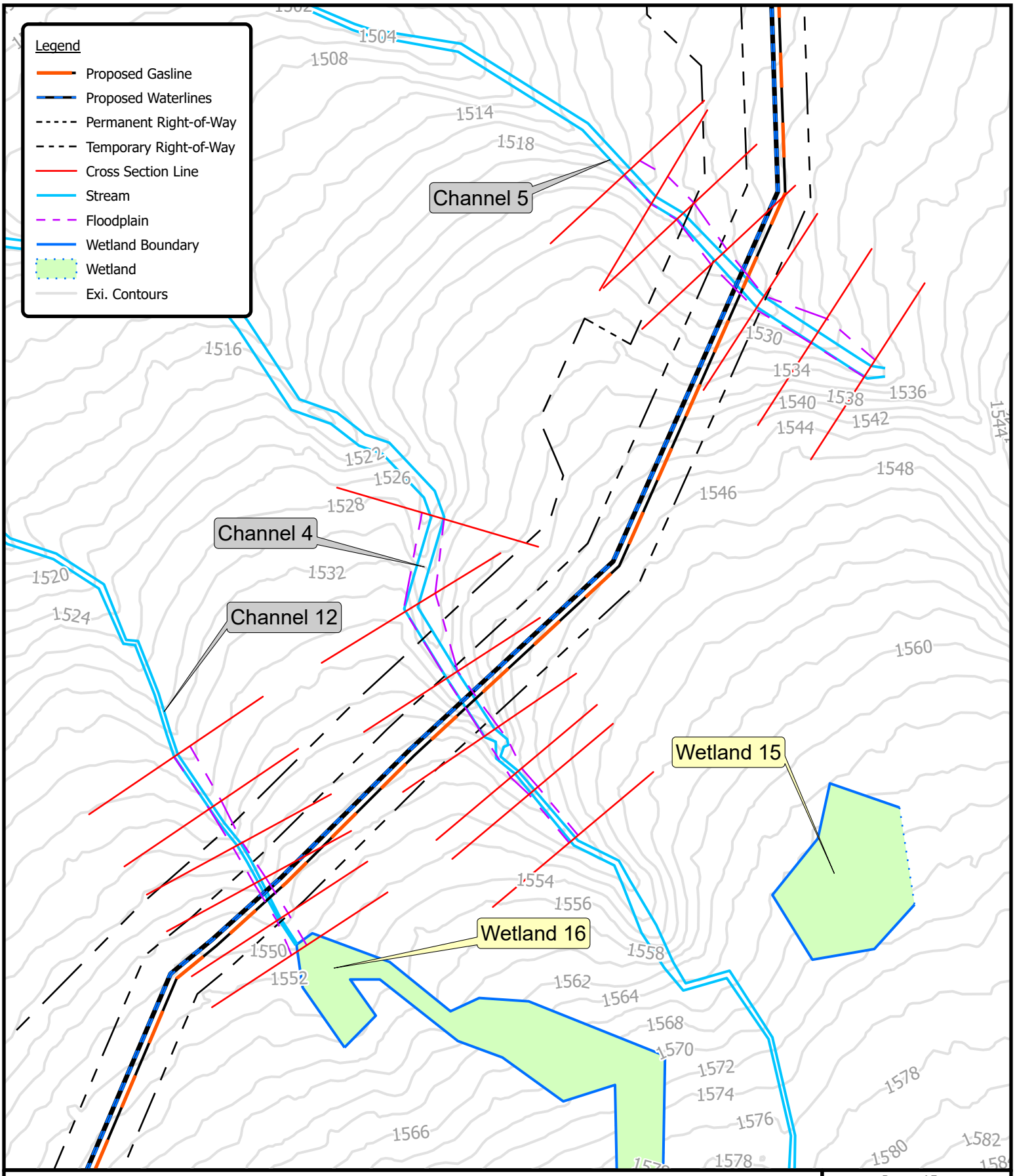


Figure 3C: Floodplain Analysis Map for the Phase IV Pipeline Channels 4, 5 & 12

Cummings and McHenry Townships, Lycoming County, PA

N

Central Coordinates:
41.426°N 77.39°W

0 60 120Feet

USGS Quadrangle
Cammal

Prepared For:
EQT

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

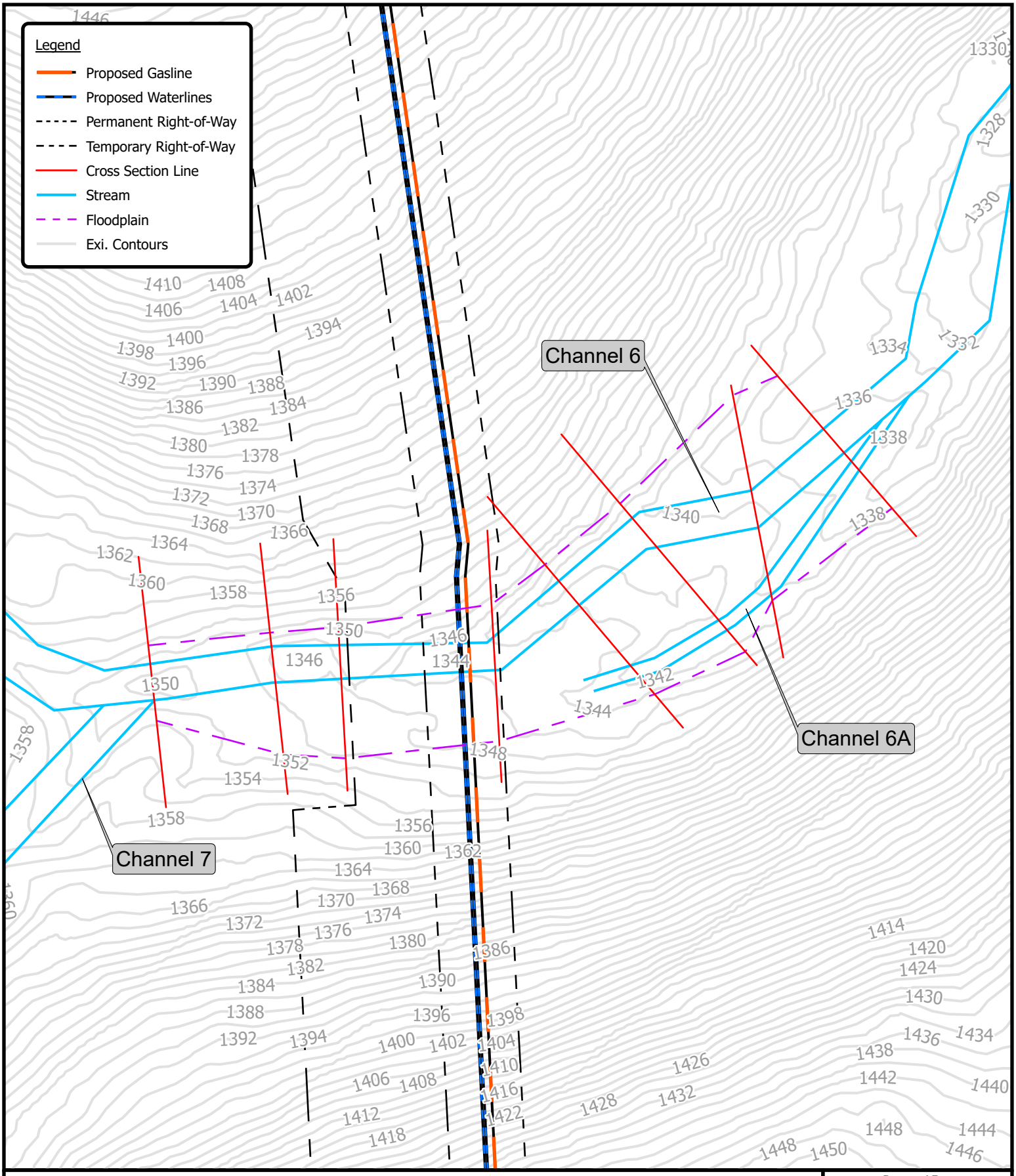


Figure 3D: Floodplain Analysis Map for the Phase IV Pipeline Channel 6

Cummings and McHenry Townships, Lycoming County, PA

N

Central Coordinates:
41.4303°N 77.3909°W

0 50 100Feet

USGS Quadrangle
Cammal

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Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

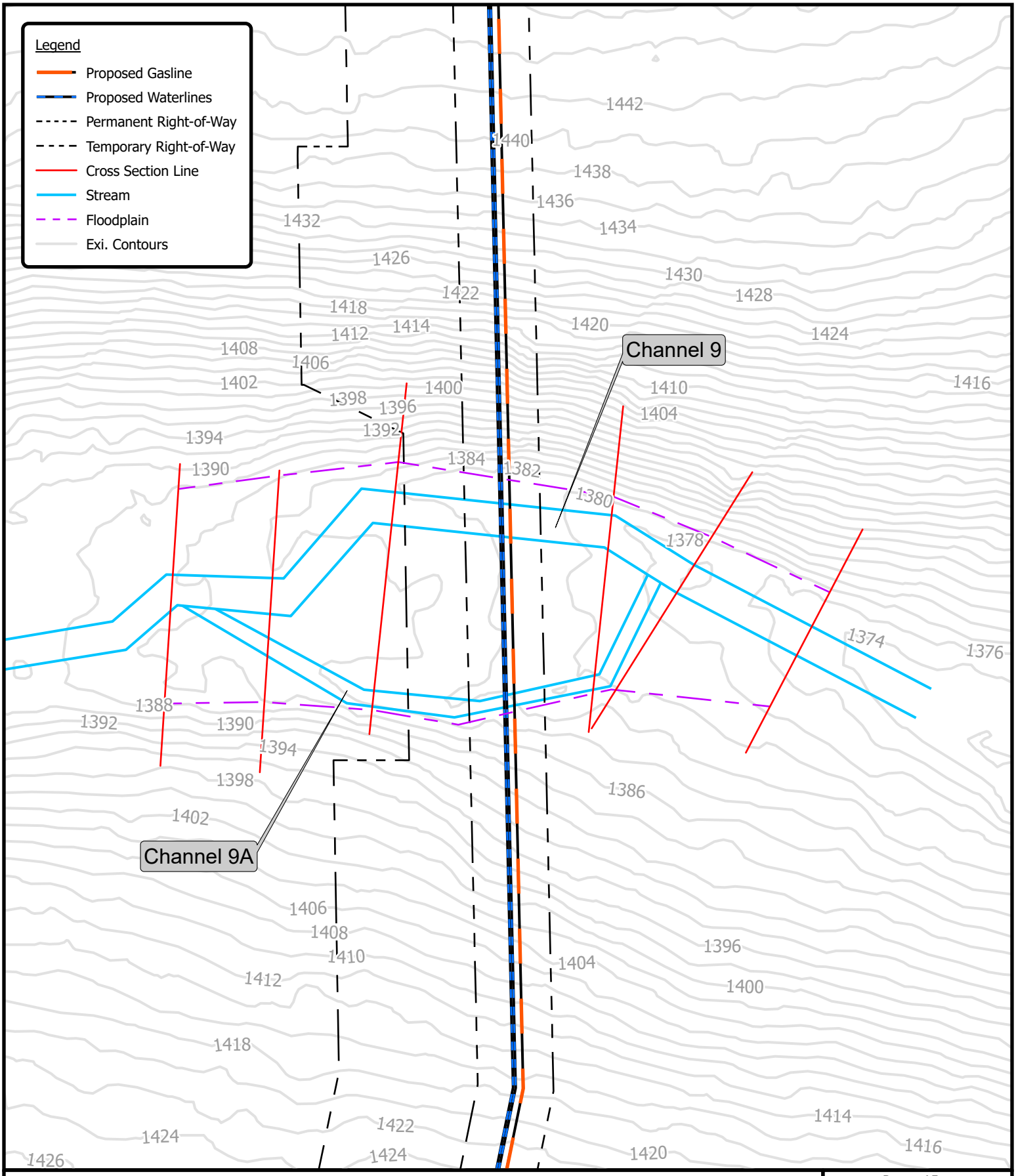


Figure 3E: Floodplain Analysis Map for the Phase IV Pipeline Channels 9 & 9A

Cummings and McHenry Townships, Lycoming County, PA

N

Central Coordinates:
41.4392°N 77.3894°W

0 50 100Feet

USGS Quadrangle
Cammal

Prepared For:
EQT

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

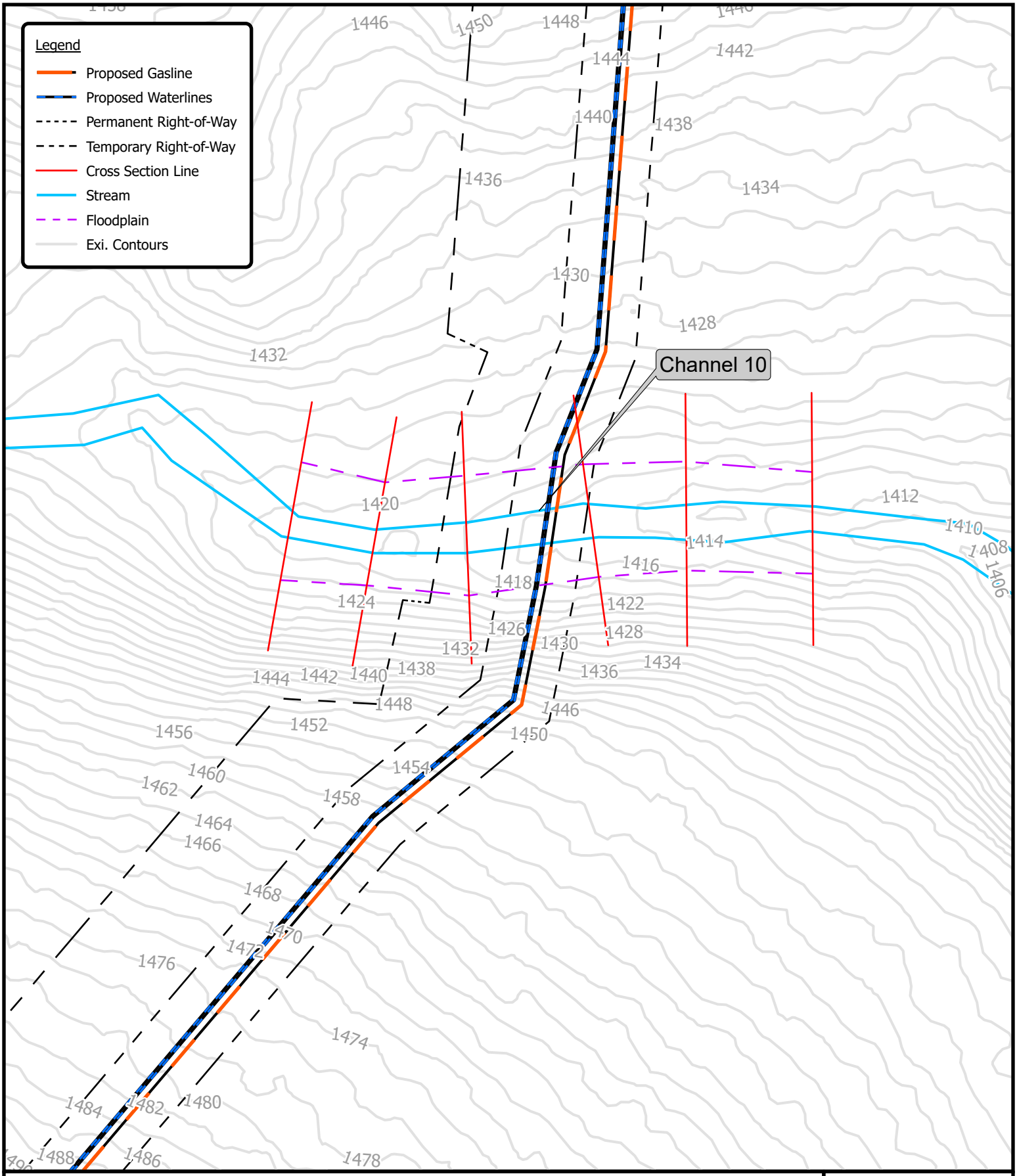


Figure 3F: Floodplain Analysis Map for the Phase IV Pipeline Channel 10

Cummings and McHenry Townships, Lycoming County, PA

N

Central Coordinates:
41.4477°N 77.3839°W

0 50 100Feet

USGS Quadrangle
Cammal

Prepared For:
EQT

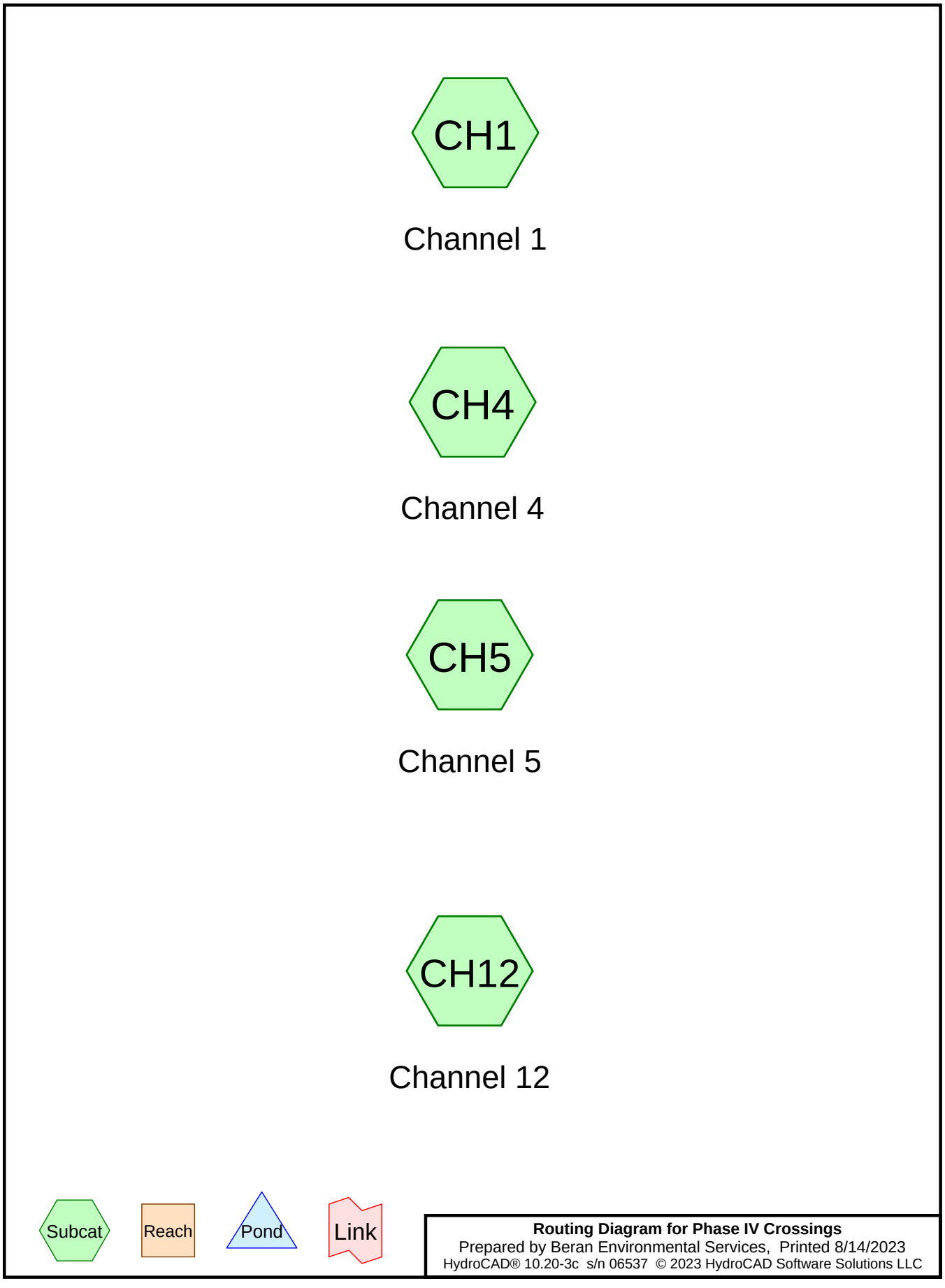
Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

Appendix B: Hydrologic Analysis

HydroCAD Calculations

Stream Stats

HydroCAD Calculations


CH1
Channel 1
CH4
Channel 4
CH5
Channel 5
CH12
Channel 12
Subcat
Reach
Pond
Link
Routing Diagram for Phase IV Crossings
Prepared by Beran Environmental Services, Printed 8/14/2023
HydroCAD® 10.20-3c s/n 06537 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment CH1: Channel 1

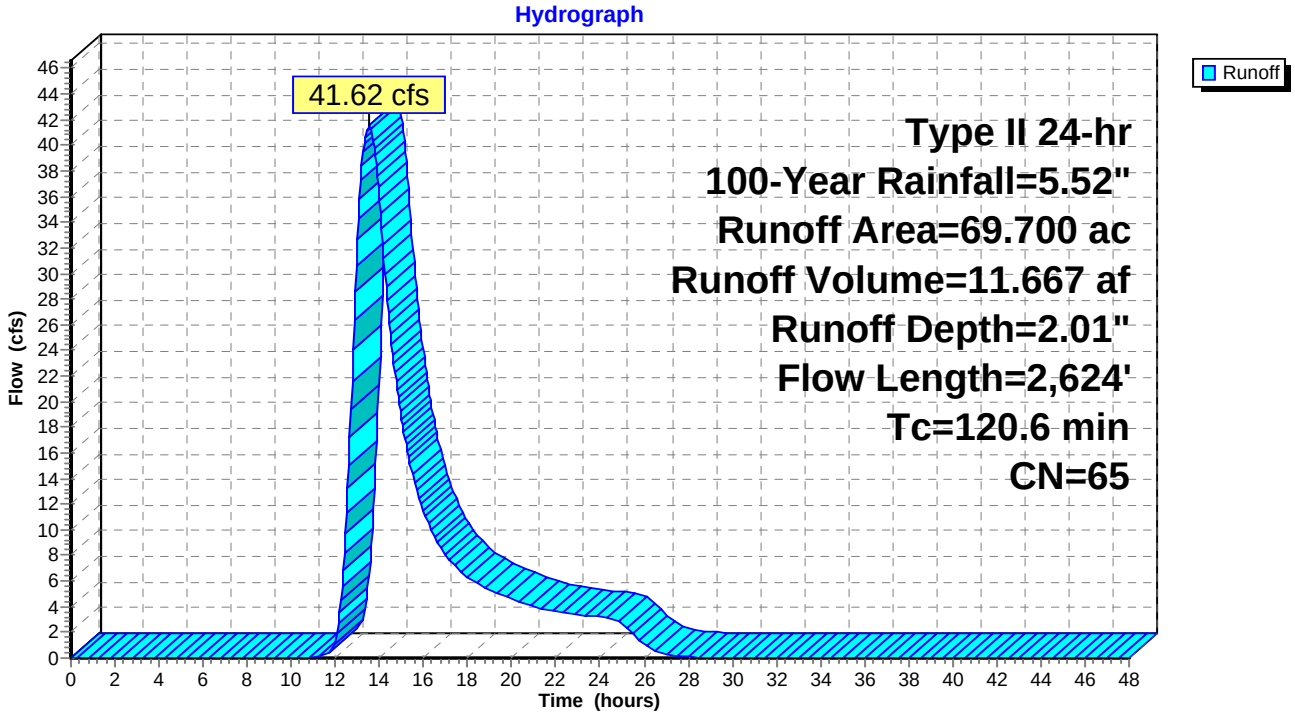
Runoff = 41.62 cfs @ 13.53 hrs, Volume= 11.667 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.52"

Area (ac)	CN	Description
36.800	55	Woods, Good, HSG B
32.900	77	Woods, Good, HSG D
69.700	65	Weighted Average
69.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
55.2	100	0.0100	0.03		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.56"
5.6	234	0.0769	0.69		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
8.7	447	0.1163	0.85		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
12.0	480	0.0708	0.67		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
13.9	427	0.0422	0.51		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
6.3	252	0.0714	0.67		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
18.9	684	0.0585	0.60		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
120.6	2,624	Total			

Subcatchment CH1: Channel 1



Summary for Subcatchment CH4: Channel 4

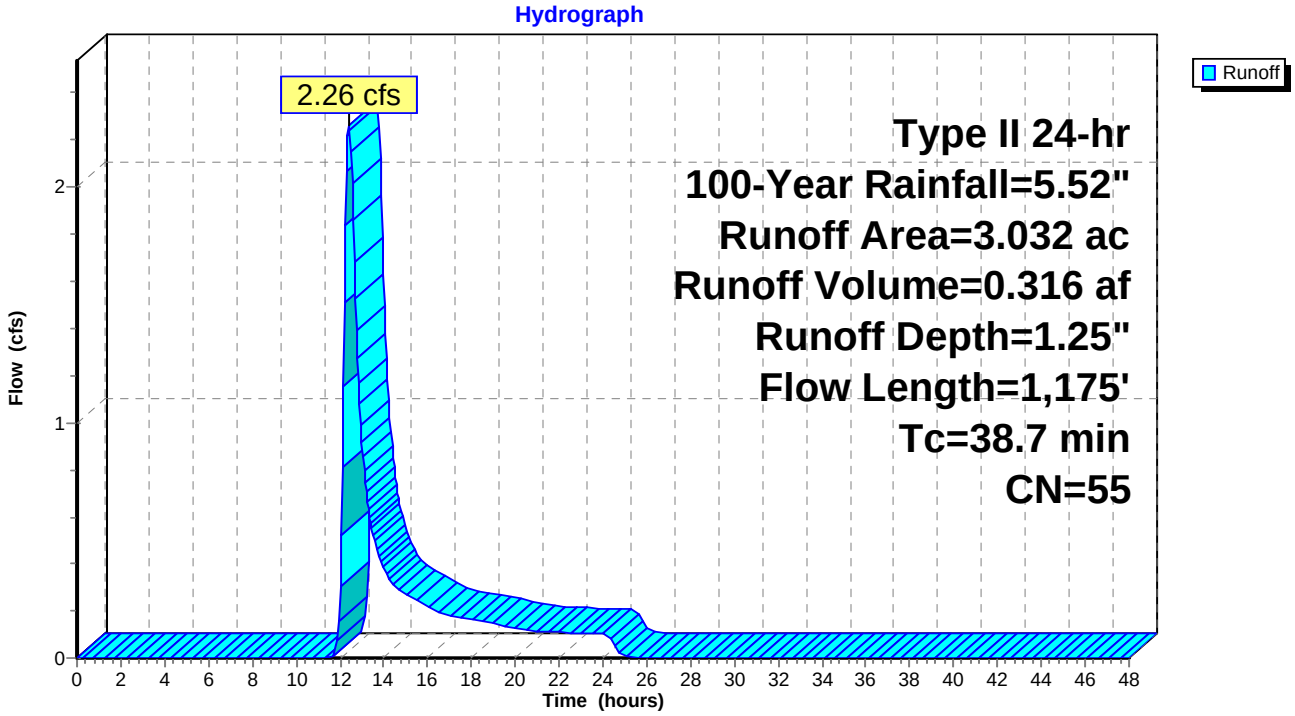
Runoff = 2.26 cfs @ 12.41 hrs, Volume= 0.316 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.52"

Area (ac)	CN	Description
3.032	55	Woods, Good, HSG B
3.032		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.3	100	0.0700	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.56"
0.8	36	0.0833	0.72		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	48	0.3750	1.53		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
11.7	612	0.1209	0.87		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.2	187	0.1070	12.92	155.06	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.040 Mountain streams
0.2	192	0.1146	13.37	160.47	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 2.0 '/' Top.W=10.00' n= 0.040 Mountain streams
38.7	1,175	Total			

Subcatchment CH4: Channel 4



Summary for Subcatchment CH5: Channel 5

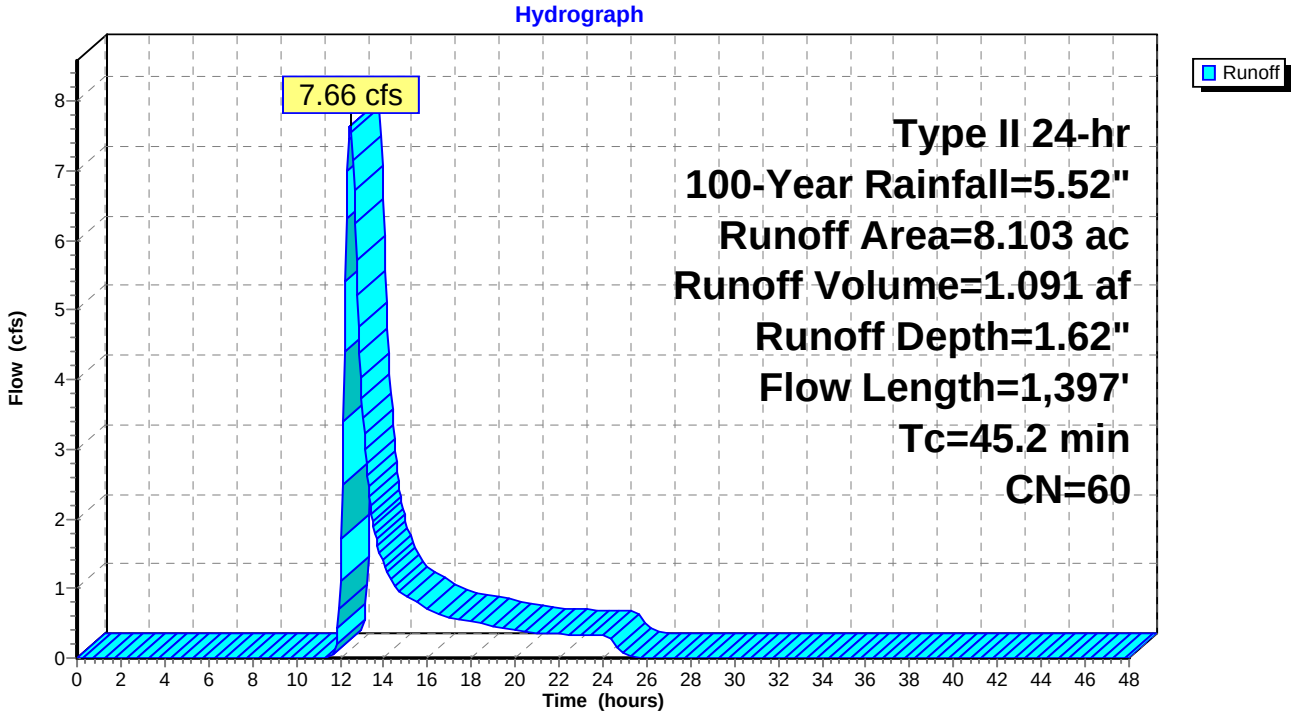
Runoff = 7.66 cfs @ 12.48 hrs, Volume= 1.091 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.52"

Area (ac)	CN	Description
6.161	55	Woods, Good, HSG B
1.942	77	Woods, Good, HSG D
8.103	60	Weighted Average
8.103		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.3	100	0.0700	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.56"
1.3	97	0.2474	1.24		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.2	496	0.1048	0.81		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.7	50	0.2400	1.22		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
7.4	372	0.1129	0.84		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.3	282	0.0993	13.48	215.73	**Trap/Vee/Rect Channel Flow,** Bot.W=4.00' D=2.00' Z= 2.0 '/' Top.W=12.00' n= 0.040 Mountain streams
45.2	1,397	Total			

Subcatchment CH5: Channel 5



Summary for Subcatchment CH12: Channel 12

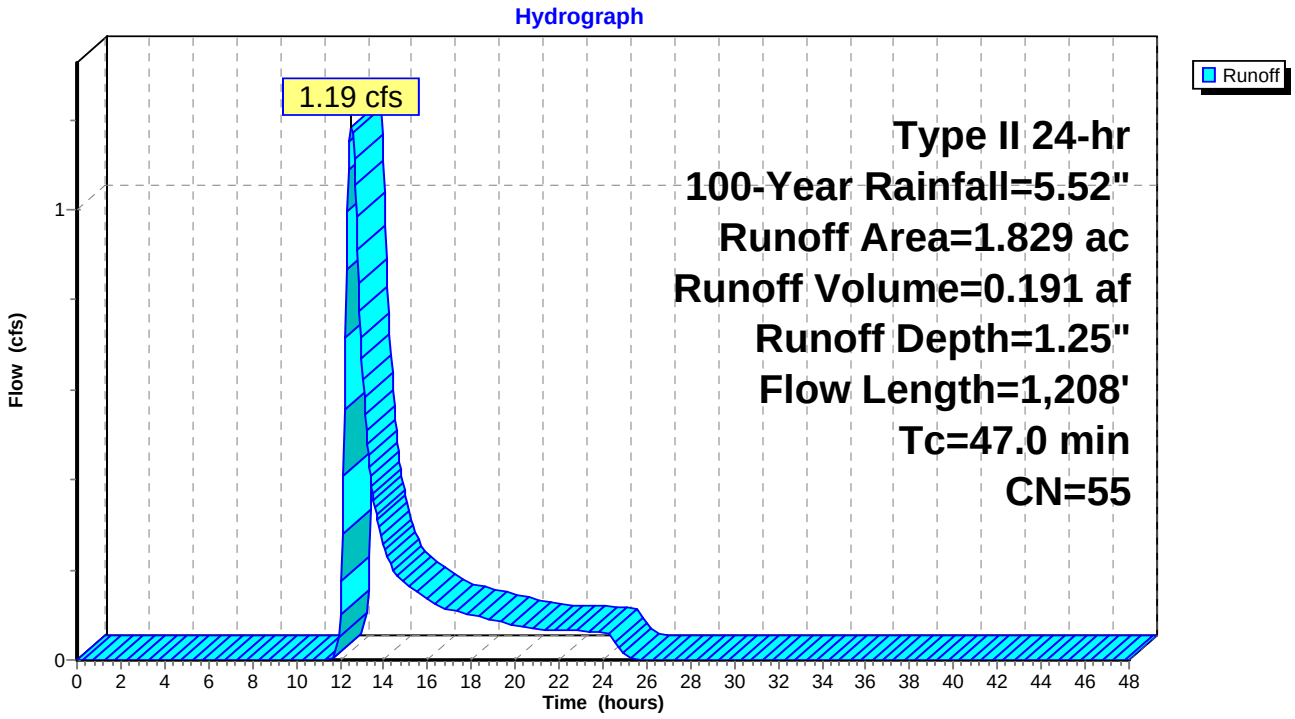
Runoff = 1.19 cfs @ 12.52 hrs, Volume= 0.191 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.52"

Area (ac)	CN	Description
1.829	55	Woods, Good, HSG B
1.829		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.1	100	0.0650	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.56"
4.1	166	0.0723	0.67		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.5	46	0.3478	1.47		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.3	896	0.1339	0.91		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
47.0	1,208	Total			

Subcatchment CH12: Channel 12

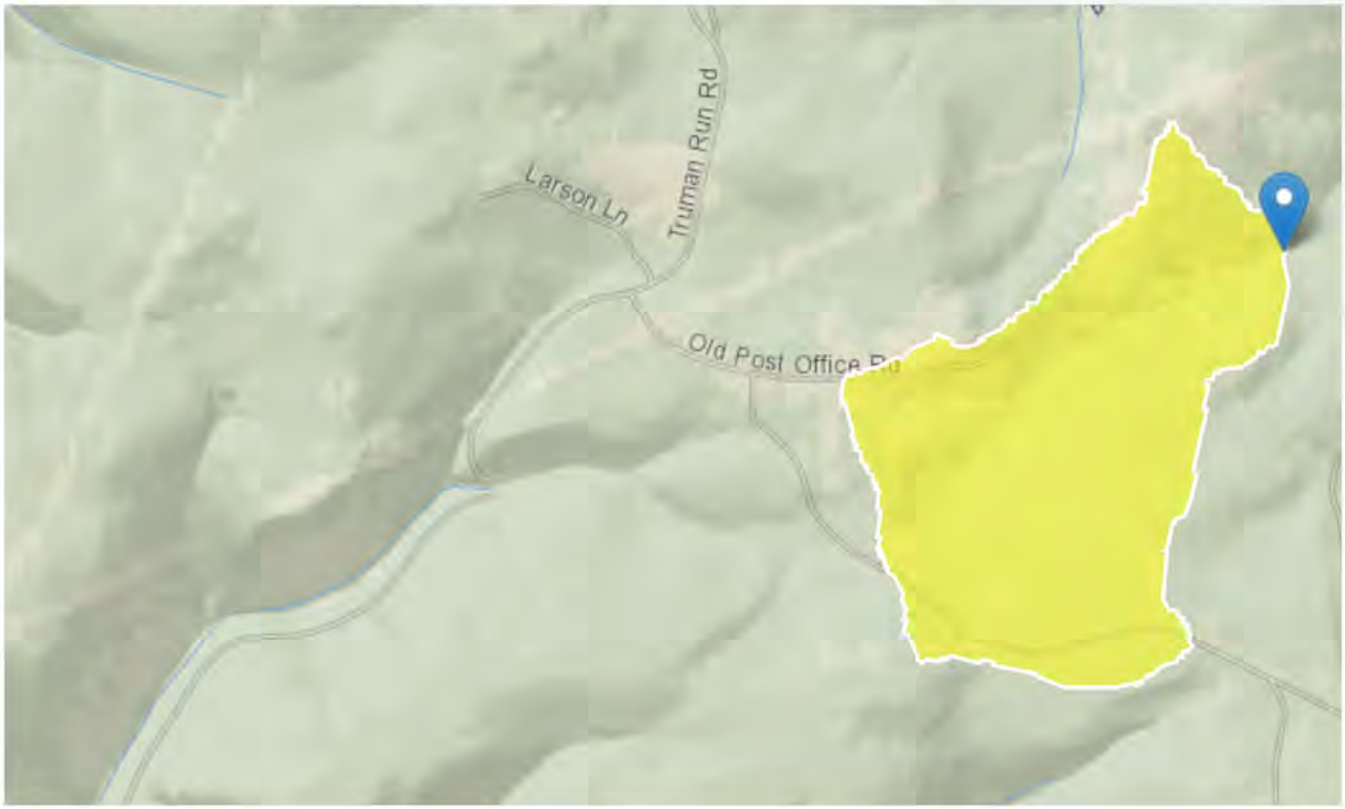


Stream Stats

Channel 3 (Ott Fork) StreamStats Report

Exploration Tools

Region ID: PA
Workspace ID: PA20221109193117382000
Clicked Point (Latitude, Longitude): 41.41394, -77.38913
Time: 2022-11-09 14:31:40 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.68	square miles
ELEVMAX	Maximum basin elevation	1871	feet

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Region 1 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.68	square miles	3.04	1490
ELEVMAX	Maximum Basin Elevation	1871	feet	1470	2690

Peak-Flow Statistics Disclaimers [Peak Flow Region 1 SIR 2019 5094]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Peak-Flow Statistics Flow Report [Peak Flow Region 1 SIR 2019 5094]

Statistic	Value	Unit
50-percent AEP flood	66.7	ft^3/s
20-percent AEP flood	118	ft^3/s
10-percent AEP flood	160	ft^3/s
4-percent AEP flood	224	ft^3/s
2-percent AEP flood	278	ft^3/s
1-percent AEP flood	339	ft^3/s
0.5-percent AEP flood	407	ft^3/s
0.2-percent AEP flood	507	ft^3/s

Peak-Flow Statistics Citations

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https://doi.org/10.3133/sir20195094)

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Application Version: 4.11.1

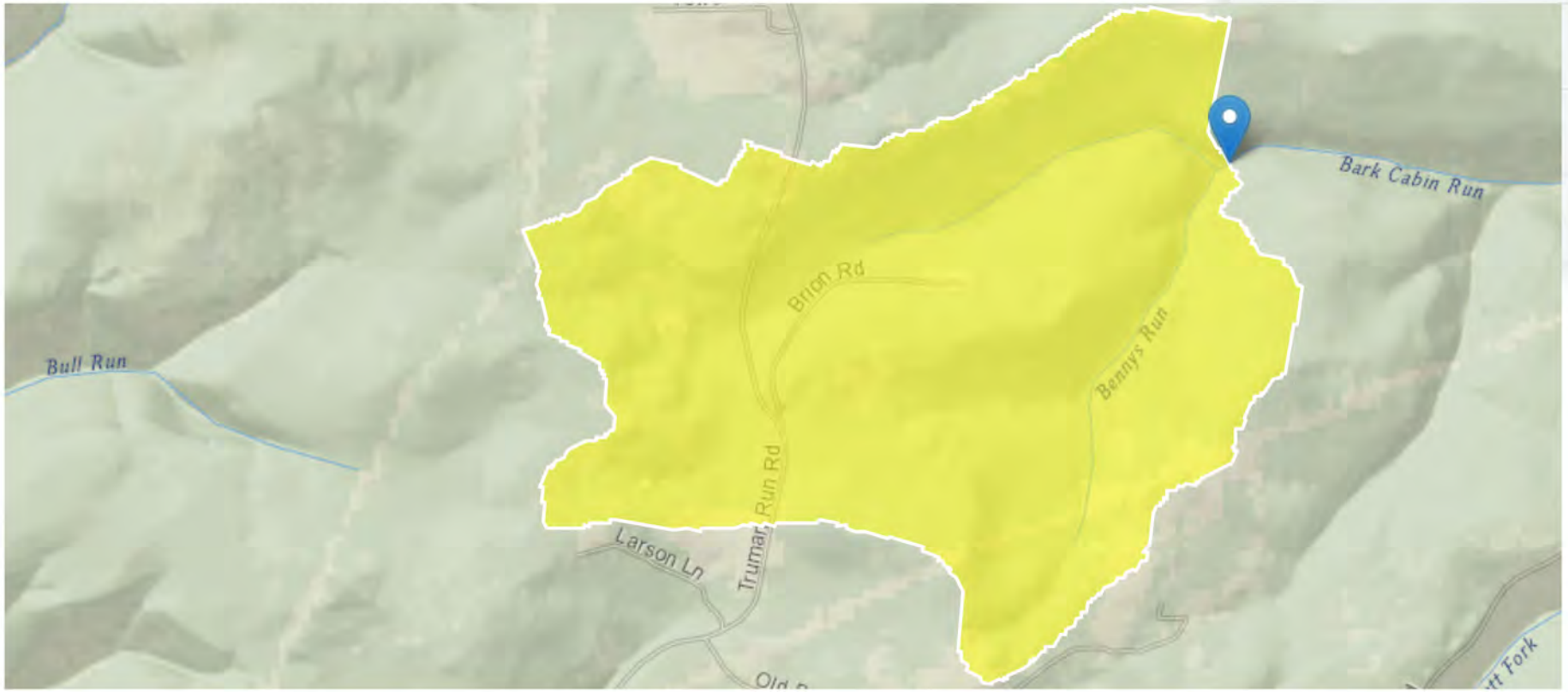
StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Channel 6 (Bark Cabin Run) StreamStats Report

Exploration Tools

Region ID: PA
Workspace ID: PA20221109155747224000
Clicked Point (Latitude, Longitude): 41.43042, -77.39096
Time: 2022-11-09 10:58:10 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.04	square miles
ELEVMAX	Maximum basin elevation	1771	feet

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Region 1 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.04	square miles	3.04	1490
ELEVMAX	Maximum Basin Elevation	1771	feet	1470	2690

Peak-Flow Statistics Disclaimers [Peak Flow Region 1 SIR 2019 5094]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Peak-Flow Statistics Flow Report [Peak Flow Region 1 SIR 2019 5094]

Statistic	Value	Unit
50-percent AEP flood	133	ft^3/s
20-percent AEP flood	225	ft^3/s
10-percent AEP flood	299	ft^3/s
4-percent AEP flood	409	ft^3/s
2-percent AEP flood	502	ft^3/s
1-percent AEP flood	605	ft^3/s

Statistic	Value	Unit
0.5-percent AEP flood	718	ft^3/s
0.2-percent AEP flood	884	ft^3/s

Peak-Flow Statistics Citations

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https://doi.org /10.3133/sir20195094)

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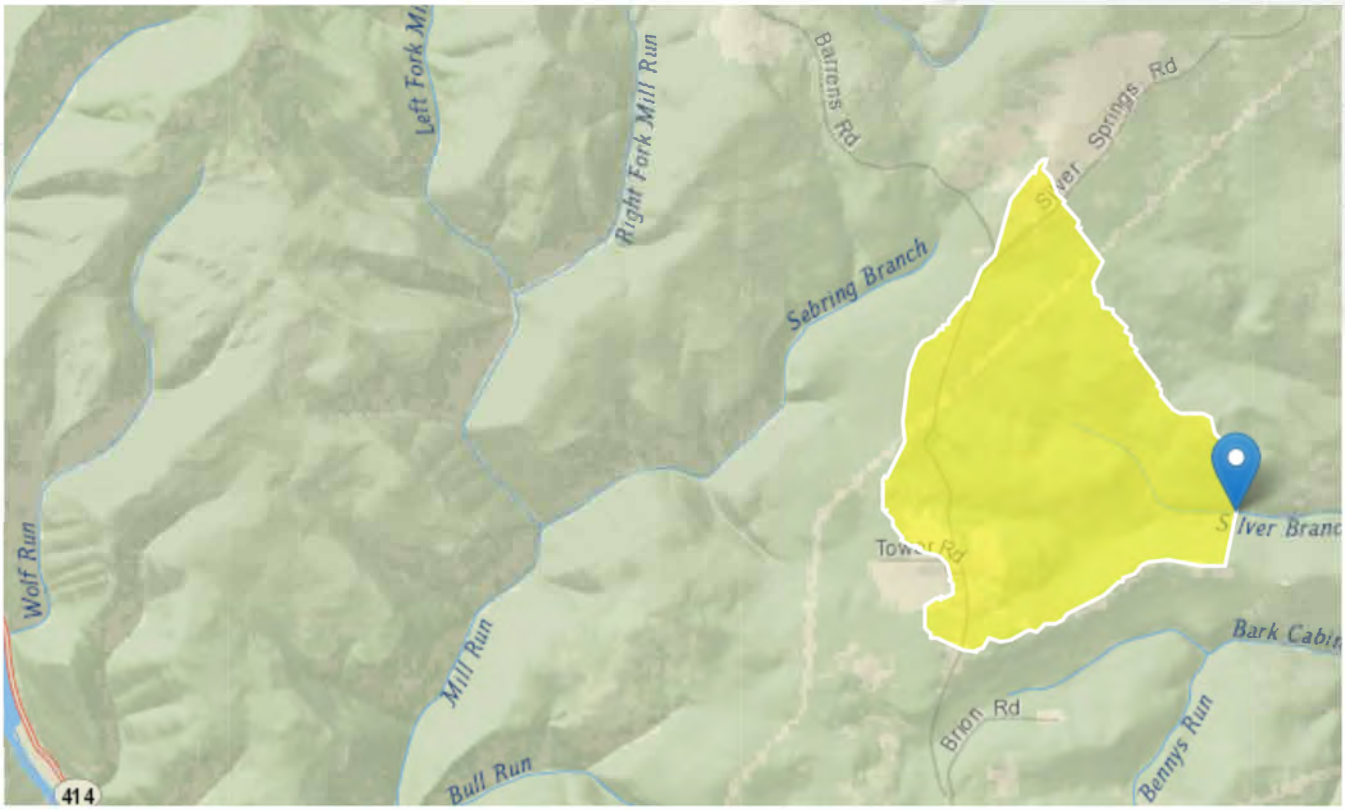
Application Version: 4.11.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Channel 9 (Silver Branch) StreamStats Report

Exploration Tools

Region ID: PA
Workspace ID: PA20221109160625091000
Clicked Point (Latitude, Longitude): 41.43927, -77.38928
Time: 2022-11-09 11:06:48 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.91	square miles
ELEVMAX	Maximum basin elevation	1856	feet

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Region 1 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.91	square miles	3.04	1490
ELEVMAX	Maximum Basin Elevation	1856	feet	1470	2690

Peak-Flow Statistics Disclaimers [Peak Flow Region 1 SIR 2019 5094]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Peak-Flow Statistics Flow Report [Peak Flow Region 1 SIR 2019 5094]

Statistic	Value	Unit
50-percent AEP flood	138	ft^3/s
20-percent AEP flood	237	ft^3/s
10-percent AEP flood	318	ft^3/s
4-percent AEP flood	437	ft^3/s
2-percent AEP flood	539	ft^3/s
1-percent AEP flood	653	ft^3/s
0.5-percent AEP flood	778	ft^3/s
0.2-percent AEP flood	964	ft^3/s

Peak-Flow Statistics Citations

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https://doi.org/10.3133/sir20195094)

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Application Version: 4.11.1

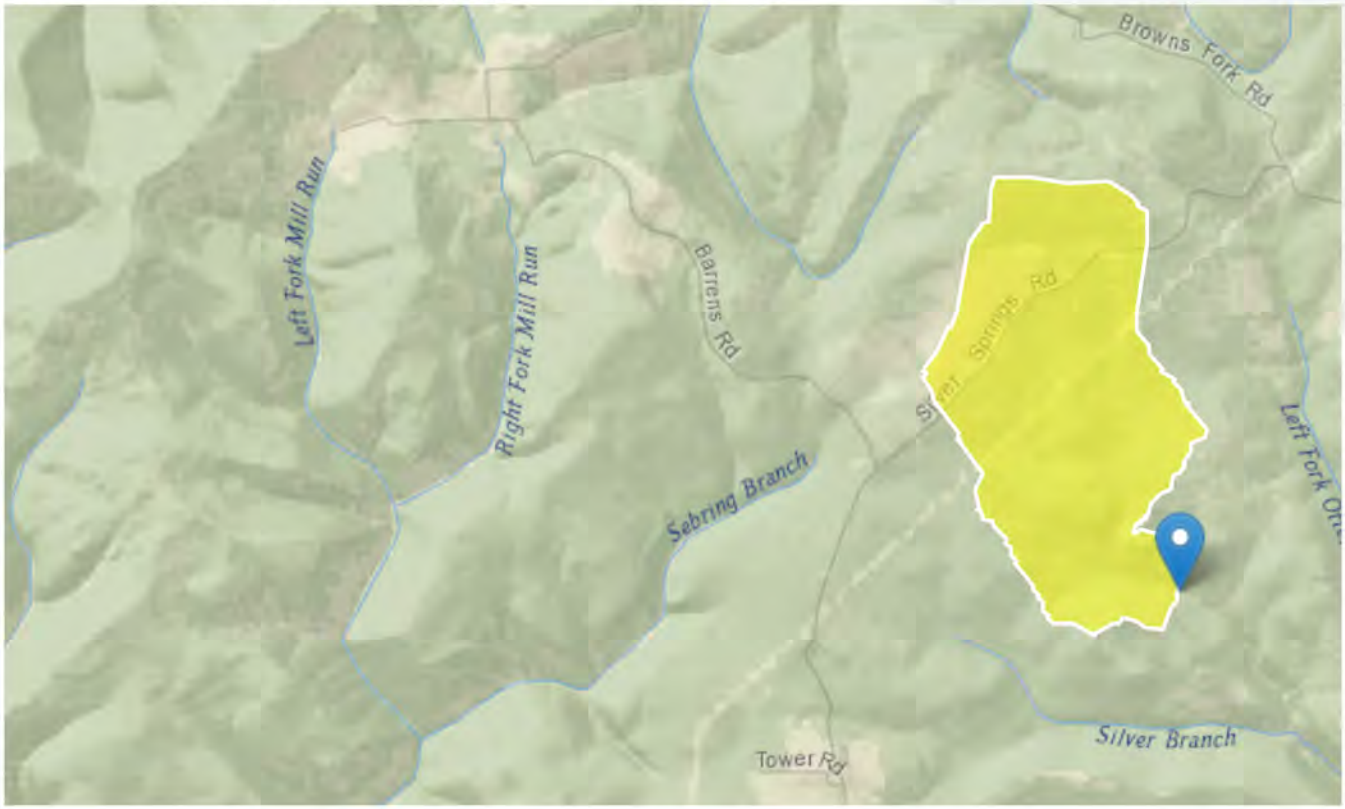
StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Channel 10 (UNT Silver Branch) StreamStats Report

Exploration Tools

Region ID: PA
Workspace ID: PA20221109161203233000
Clicked Point (Latitude, Longitude): 41.44774, -77.38383
Time: 2022-11-09 11:12:27 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.63	square miles
ELEVMAX	Maximum basin elevation	2093	feet

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Region 1 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.63	square miles	3.04	1490
ELEVMAX	Maximum Basin Elevation	2093	feet	1470	2690

Peak-Flow Statistics Disclaimers [Peak Flow Region 1 SIR 2019 5094]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Peak-Flow Statistics Flow Report [Peak Flow Region 1 SIR 2019 5094]

Statistic	Value	Unit
50-percent AEP flood	154	ft^3/s
20-percent AEP flood	273	ft^3/s
10-percent AEP flood	373	ft^3/s
4-percent AEP flood	523	ft^3/s
2-percent AEP flood	653	ft^3/s
1-percent AEP flood	800	ft^3/s
0.5-percent AEP flood	964	ft^3/s
0.2-percent AEP flood	1210	ft^3/s

Peak-Flow Statistics Citations

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https://doi.org/10.3133/sir20195094)

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Application Version: 4.11.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Appendix C: Hydraulic Analysis

(HEC-RES)

Summary Output Tables

HEC-RAS Plan: Plan 01 River: Hackett Fork Reach: CH1 Profile: 100-year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
CH1	150.000	100-year	41.62	1673.39	1676.09		1676.10	0.000196	0.74	60.35	44.27	0.10
CH1	125.000	100-year	41.62	1674.60	1676.07		1676.09	0.001129	1.13	43.55	58.11	0.21
CH1	100.000	100-year	41.62	1675.27	1675.82	1675.82	1676.00	0.033341	3.36	12.40	36.27	1.00
CH1	75.000	100-year	41.62	1668.19	1668.77	1668.77	1668.98	0.031711	3.71	11.22	26.68	1.01
CH1	50.000	100-year	41.62	1665.95	1666.60	1666.60	1666.81	0.032628	3.62	11.50	28.95	1.01
CH1	25.000	100-year	41.62	1663.23	1664.01	1664.01	1664.25	0.031039	3.89	10.69	23.26	1.01
CH1	0.000	100-year	41.62	1661.58	1662.34	1662.34	1662.55	0.031037	3.71	11.21	26.20	1.00

HEC-RAS Plan: Plan 01 River: Ott Fork Reach: Ch3 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ch3	280.000	100-Year	339.00	1596.99	1598.53	1598.53	1598.77	0.029665	4.84	98.05	115.07	1.05
Ch3	226.430	100-Year	339.00	1595.00	1595.70	1595.70	1596.10	0.098290	6.28	70.52	107.90	1.76
Ch3	146.137	100-Year	339.00	1590.24	1592.36	1592.36	1592.97	0.022772	6.26	54.18	45.73	1.01
Ch3	100.433	100-Year	339.00	1587.93	1590.20	1590.20	1590.86	0.021702	6.52	51.99	39.66	1.00
Ch3	50.831	100-Year	339.00	1586.44	1588.74	1588.74	1589.36	0.022656	6.34	53.51	44.06	1.01
Ch3	0.000	100-Year	339.00	1585.07	1586.94	1586.94	1587.56	0.020764	6.72	67.29	57.84	1.00

HEC-RAS Plan: Plan 01 River: UNT Bennys Run Reach: Ch4 Profile: 100-yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ch4	180.000	100-yr	2.26	1546.92	1547.27	1547.27	1547.35	0.043044	2.37	0.95	5.53	1.01
Ch4	150.000	100-yr	2.26	1544.13	1544.47	1544.47	1544.56	0.044078	2.39	0.95	5.55	1.02
Ch4	138.232	100-yr	2.26	1543.63	1543.90	1543.90	1543.98	0.044283	2.21	1.02	6.75	1.00
Ch4	115.296	100-yr	2.26	1538.35	1538.83	1538.83	1538.95	0.039131	2.76	0.82	3.42	1.00
Ch4	82.468	100-yr	2.26	1533.90	1534.27	1534.27	1534.36	0.041099	2.43	0.93	5.03	0.99
Ch4	45.091	100-yr	2.26	1530.70	1531.00	1531.00	1531.08	0.043545	2.21	1.02	6.73	1.00
Ch4	0.000	100-yr	2.26	1525.46	1525.76	1525.76	1525.86	0.040951	2.48	0.91	4.75	1.00

HEC-RAS Plan: Plan 01 River: UNT Bennys Run Reach: Ch5 Profile: 100-yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ch5	150.000	100-yr	7.66	1531.46	1531.91	1531.91	1532.07	0.036312	3.17	2.42	8.00	1.01
Ch5	120.000	100-yr	7.66	1529.29	1529.61	1529.61	1529.72	0.039962	2.62	2.92	13.89	1.01
Ch5	89.097	100-yr	7.66	1525.16	1525.69	1525.69	1525.85	0.035159	3.21	2.39	7.54	1.00
Ch5	60.000	100-yr	7.66	1522.84	1523.25	1523.25	1523.38	0.036524	2.86	2.67	10.39	1.00
Ch5	33.128	100-yr	7.66	1521.38	1521.84	1521.84	1521.96	0.037252	2.77	2.76	11.47	1.00
Ch5	18.332	100-yr	7.66	1520.36	1520.68	1520.68	1520.78	0.038614	2.65	2.89	13.22	1.00
Ch5	0.000	100-yr	7.66	1518.37	1518.85	1518.85	1519.00	0.036847	3.12	2.46	8.42	1.02

HEC-RAS Plan: Plan 01 River: Bark Cabin Run Reach: Ch6 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ch6	300.000	100-Year	605.00	1349.57	1353.46	1353.46	1354.64	0.018875	8.71	69.49	30.05	1.01
Ch6	251.431	100-Year	605.00	1347.65	1351.26	1351.26	1352.24	0.017114	7.99	82.01	48.65	0.96
Ch6	225.000	100-Year	605.00	1347.96	1350.36	1350.36	1351.28	0.018427	7.96	90.71	52.17	0.99
Ch6	163.813	100-Year	605.00	1343.82	1346.98	1346.98	1347.87	0.017760	7.64	85.40	54.36	0.97
Ch6	125.000	100-Year	605.00	1341.55	1344.65	1344.65	1345.47	0.030656	8.26	98.47	61.07	1.20
Ch6	86.652	100-Year	605.00	1340.67	1343.07	1343.07	1343.83	0.019364	7.51	110.85	76.94	1.00
Ch6	41.399	100-Year	605.00	1336.69	1340.59	1340.59	1341.23	0.036960	7.58	106.32	78.32	1.27
Ch6	0.000	100-Year	605.00	1335.64	1337.92	1337.92	1338.73	0.039436	8.36	97.41	69.39	1.34

HEC-RAS Plan: Plan 01 River: Silver Run Reach: Ch9 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ch9	279.507	100-Year	653.00	1385.55	1387.82	1387.82	1388.55	0.023534	7.46	114.87	85.33	1.07
Ch9	240.000	100-Year	653.00	1383.64	1386.33		1386.80	0.011958	6.03	147.88	90.06	0.79
Ch9	175.000	100-Year	653.00	1382.34	1384.95	1384.95	1385.77	0.026360	7.84	111.47	92.29	1.13
Ch9	88.586	100-Year	653.00	1378.31	1380.93	1380.93	1381.72	0.020218	7.73	115.88	76.82	1.02
Ch9	53.197	100-Year	653.00	1375.87	1378.90	1378.90	1379.82	0.018132	7.68	87.85	58.66	0.98
Ch9	0.000	100-Year	653.00	1374.95	1377.42	1377.42	1378.39	0.017999	7.94	87.38	51.12	0.98

HEC-RAS Plan: Plan 01 River: UNT Silver Branch Reach: Ch10 Profile: 100-Year

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ch10	208.140	100-Year	800.00	1419.54	1422.55	1422.55	1423.68	0.017510	8.56	96.50	47.49	0.99
Ch10	174.103	100-Year	800.00	1418.26	1421.82	1421.82	1423.02	0.017848	8.80	92.17	41.49	1.00
Ch10	137.522	100-Year	800.00	1417.89	1420.73	1420.73	1421.86	0.017407	8.56	96.98	47.54	0.99
Ch10	87.855	100-Year	800.00	1414.15	1417.65	1417.65	1418.79	0.017538	8.58	94.99	45.04	0.99
Ch10	50.000	100-Year	800.00	1412.45	1416.26	1416.26	1417.41	0.017940	8.61	93.38	43.21	1.00
Ch10	0.000	100-Year	800.00	1410.88	1414.88	1414.88	1416.06	0.017892	8.72	92.19	40.25	1.00

HEC-RAS Plan: Plan 01 River: UNT Bennys Run Reach: Ch12 Profile: 100-yr

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ch12	110.000	100-yr	1.19	1550.12	1550.26	1550.26	1550.30	0.052694	1.64	0.73	8.64	0.99
Ch12	92.428	100-yr	1.19	1547.51	1547.66	1547.66	1547.71	0.053392	1.85	0.64	6.45	1.03
Ch12	71.950	100-yr	1.19	1545.10	1545.30	1545.30	1545.36	0.049196	1.82	0.65	6.27	0.99
Ch12	51.950	100-yr	1.19	1540.98	1541.22	1541.22	1541.28	0.050954	2.01	0.59	5.01	1.03
Ch12	30.000	100-yr	1.19	1537.17	1537.38	1537.38	1537.43	0.049958	1.86	0.64	5.98	1.01
Ch12	0.000	100-yr	1.19	1533.18	1533.38	1533.38	1533.44	0.046686	1.97	0.60	4.92	0.99

ATTACHMENT O:
STORMWATER MANAGEMENT ANALYSIS
W/CONSISTENCY LETTER
N/A

ATTACHEMENT P:
FLOODPLAIN MANAGEMENT ANALYSIS
W/ CONSISTENCY LETTER
N/A

ATTACHMENT Q:
RISK ASSESSMENT
N/A

ATTACHMENT R:

PROFESSIONAL ENGINEER'S SEAL AND CERTIFICATION

(All plans have been sealed and certified by a professional Engineer)

ATTACHMENT S:
ALTERNATIVES ANALYSIS

Alternatives Analysis Phase IV Pipeline

The Phase IV Pipeline project is being proposed to provide safe and reliable transportation for natural gas being extracted from State Game Lands 75 and the surrounding private leaseholds. The project is sized to accommodate future natural gas transportation needs for the region. PGE has a substantial acreage position to the East of the proposed terminus of the project. This project will serve as the primary gas gathering line for this development. The project will connect to an existing gas gathering system that is operated by Pennsylvania General Energy Co., LLC.(PGE). The existing gas gathering system ultimately flows into the Williams Transco pipeline to the South where it will be distributed into the natural gas market.

PGE also has a fragmented acreage position to the West of Silver Springs Road. At this time however, PGE does not control sufficient acreage for development to occur to the West of Silver Springs Road.

The selected route shown in orange was chosen by considering a multitude of factors including:

1. Minimization of Chapter 105 Impacts
2. Landowner stipulations
3. Minimization of overall route length which will reduce the likelihood of environmental impacts and reduces project costs
4. Project Cost

The evaluation of pipeline routes is a step by step process. First, a desktop analysis of the project area is completed to develop any major route alternatives based on known (or potential) environmental constraints.

PGE then begins to work with landowners on major route alternatives, looking at potential environmental and landowner issues as well as the feasibility of the route in the field. Pending wetland delineation results, PNDI receipts, and landowner responses, a route is selected. The route with the least amount of impacts to habitats and the environment is chosen.

The selected route is then evaluated in more detail with engineering studies and boundary surveys. Constructability and safety are heavily considered at this time. The proposed route then undergoes final adjustment and the Limit of Disturbance (LOD) is finalized.

If at any point in this process environmental resources are encountered, constructability issues arise, or landowner denial is identified, the routing process is reinitiated for the applicable section of the potential route.

A map depicting the alternative routes is attached. The following sections provide a summary of these alternatives and why they were not chosen.

One special consideration for this project were stipulations for routing a pipeline as determined by private landowners, the Department of Conservation of Natural Resources (DCNR) and the Pennsylvania Game Commission (PGC). The starting point of the pipeline is located on DCNR and they hold a significant land position immediately to the West of the pipeline terminus. The PGC has entered into a lease with PGE and has land holdings in the central and northern portions of the pipeline. Finally, adjacent to the pipeline initiation point, there are multiple private parcels. PGE had multiple private landowners along the proposed alternative routes that would not a allow construction of a pipeline on

their property. Due to the locations of these parcels coupled with the position and size of the DCNR and PGC landholdings, this largely dictated the final location of the pipeline.

Finally, both PGC and DCNR have evaluated a similar route in 2014 and approved its location. Due to low product price however, the project was never undertaken. When PGE sought approval of a new route beginning in 2021, it made several changes to reduce Chapter 105 impacts.

Due to the distribution of the DCNR and PGC land position, multiple alternatives were eliminated from consideration early in the process. A breakdown of the stipulation of each landowner is as follows:

PGC Pipeline Routing Criteria

1. Minimize pipeline route length
2. Minimize Chapter 105 Impacts
3. Consider how the pipeline route impacts the distribution of ancillary infrastructure (natural gas gathering lines and compressor stations)
4. Follow the property boundary, where possible

DCNR Pipeline Routing Criteria

1. Minimize the creation of new cleared corridors
2. Avoid paralleling the Wolf Run and Bark Cabin Wild Areas
3. Do not propose any routes within the Wolf Run or Bark Cabin Wild Areas
4. Minimize Chapter 105 Impacts
5. Minimize total disturbance to DCNR property

As part of the preparation of the Alternatives Analysis, multiple previously conducted wetland surveys were examined to determine potential impacts. The following delineations were used:

1. EADS Group – Wetland Delineations conducted in 2014 for SGL 75 Pad A and Silver Springs Road
2. CDR McGuire – Wetland Delineation conducted in 2023 as part of a proposed road maintenance project for Silver Springs Road
3. Beran Environmental – Wetland Delineations conducted as part of the Phase IV project

The results of these surveys have been displayed on the alternatives analysis maps.

Alternative 1 Original PGC/DCNR Approved Route (aqua):

The original route was previously approved by both the PGC and DCNR in 2014. When PGE reevaluated the project in 2021, it was determined that the route on DCNR could be shortened and the impact to Wetland 2 could be avoided. The updated delineation also revealed a new wetland that was impacted (Wetland 11). This impacted wetland could also be easily avoided. PGE also walked the route and noted a few natural rock outcroppings that would be impacted by the original route that could be avoided. These features are called out on the E&S plan and have been avoided.

Finally, during its field investigations and subsequent follow up with PGC, there was a timber sale that was planned in close proximity to the pipeline. The original route could be adjusted to follow the edge of the timber sale which was preferred by the PGC. For these reasons the route previously approved by PGC and DCNR was rejected by PGE.

There are two distinct areas where the route was shifted to avoid Chapter 105 impacts. PGE worked with the DCNR on route selection (land shown in green). Shifting the original route to the East resulted in the increased use of an existing cleared right-of-way and overall decreased clearing. This shift also avoided the impact of Wetland 2 located on DCNR and private property. Lastly, the PGC wanted PGE to solely follow the property boundary to the south of the access road to the pipeline (Alternative 4). PGE compromised with the PGC to follow the property boundary while avoiding multiple wetland impacts. This route change did add one additional stream crossing. There was still one remaining wetland impact after the shifts of the original route occurred. Alternatives to avoid these wetland impacts were considered.

Alternative 2 (Eastern; purple):

Alternative 2 was not pursued past a desk top review. DCNR rejected this alternative as it drastically increased the disturbance on their property.

Alternative 3 (Black) Follow Electric ROW:

This alternative was not pursued past a desktop review. The DCNR did not approve the cutting of a new corridor that bisected their property prior to following the electric ROW. The PGC did not approve the route due to the added disturbance on their property and due to the location of the pipeline. This route was also cost prohibitive to PGE; the length of this alternative was nearly twice the length of the selected route.

Alternative 4 (Lime Green) Follow Silver Springs Road:

DCNR initially considered this route but after further evaluation it was determined that this route did not meet the criteria that the DCNR laid out for pipeline selection. DCNR considered this route only if PGE were to directly parallel Silver Springs road. The following issues were identified with the route:

1. Proximity to Wild Areas.
    a. The route directly parallels the Wolf Run Wild Area for ~ 3700 ft whereas the selected route parallels the Bark Cabin Wild Area for only 2,300 ft.
2. Increased Wetland Impact
    a. Following Silver Springs Road will result in the impact of a minimum of three wetlands that are immediately adjacent to the road. In addition, the selected route only impacts one wetland.
3. Increased disturbance
    a. The route at a minimum adds nearly 20 acres of disturbance to DCNR as compared to the selected route
4. Minimize new cleared corridors
    a. Multiple private landowners would not allow a pipeline on their property which blocked the route (pink). Any reroute to the north of these landowners would still result in Chapter 105 impacts to Benny's Run and Ott Fork which is no different than the selected route. As such, the only viable alternative that could potentially eliminate Chapter 105 impacts would be to alter the route and cut a new corridor on DCNR for approximately 3,700 ft to the south of the private parcels. The new corridor length on DCNR for this alternative was nearly three times the selected route (~1,300 ft) on DCNR.

For these reasons, the DCNR has chosen to approve selected route.

PGC:PGC rejected the route due to the substantial increase in project disturbance.

PGE:

The route is over twice as long as the selected route which made it cost prohibitive.

Alternative 5a-c (pink) Private landowners:

Based on the rejection of Alternatives 1-4 the route from Station 116+00 to 199+00 was set (see map). Alternative 5a-c adds disturbance to PGC property and does not eliminate the crossing of Bark Cabin Run, Benny's Run and Ott Fork. (Attachment 2-3 are wetland reports that show that the headwaters of Bark Cabin Run extend to Silver Springs Road.) For this reason, the PGC rejected this alternative.

The landowners highlighted in yellow would only permit a pipeline on the easternmost border of their property. PGE did not propose an alternative that cut across these parcels for this reason. The landowners highlighted in pink would not allow a pipeline on their property.

Finally, any alternative on DCNR property adds an additional cleared corridor that is longer than the selected route.

For all of these reasons, these alternatives were rejected

Alternative 6 (yellow)

The PGC requested that PGE consider following their easternmost property boundary from station 116+00 to the southern terminus of PGC property to minimize disturbance and forest fragmentation. PGE performed a delineation of the proposed route. The route would have impacted the following additional features:

1. Wetland 14
2. Wetland 15
3. Wetland 16
4. Channel 11 Riparian buffer
5. Channel 12

For these reasons, the PGC rejected this alternative in part. The PGC requested that PGE relocate a portion of the route along the eastern property boundary. This resulted in the impact to Channel 12.

After this change was completed the route was finalized.

Selected Route (orange)

The selected route has a single impact to Wetland 7. The impact was minimized by reducing the cleared pipeline right-of-way width through this section. PGE requested that the pipeline be routed back onto DCNR to the East to avoid the impact to Wetland 7. DCNR rejected this pipeline alignment because the pipeline would impact the Bark Cabin Natural Area. PGE also examined whether the pipeline could be routed around the pipeline to the west. The wetland complex grew in size to the west with multiple pockets. The cursory wetland complex area identified by Beran Environmental Services, Inc. was open

ended to the west. Finally, the landowner would not execute an easement except along their eastern property boundary.

When the DCNR considered all routes, the selected route had the least new corridor on their property, paralleled the wild area the least and impacted less wetlands. For these reasons, DCNR agreed that the selected route was their preferred option.

Stream impacts could not be avoided due to the linear nature of a pipeline. As demonstrated by the alternatives analysis, PGE considered alternatives that were ultimately rejected to potentially avoid these impacts. In summary, due to landowners refusing to grant ROWs and the DCNR / PGC siting criteria, the selected route was the least impactful.

Boring vs Open CutTrenching of Streams:

The wetland and stream crossings throughout the selected route will all be open cut. The following is justification for this action:

Channel 2 Ott Fork

The Riparian Buffer of Ott Fork must be cut to install a timber mat bridge. Without installation of a timber mat bridge the nearest access to the northern section is 8,300 ft away. Additionally, equipment and pipeline supplies cannot be run on virgin topsoil to a timber mat bridge. Movement of equipment and pipeline supplies on/over topsoil or other incompetent material often found in the A horizon or B horizon of the soil can lead to excessive rutting which can cause flow channelization and sedimentation into Ott Fork. As such, to prepare the crossing for a timber mat bridge the travel lane for the bridge must have the topsoil removed and stockpiled. Due to the large amount of earthmoving that would already be required for the crossing, the small size of the stream, and that the stream was in an incised valley that is 10 ft lower in elevation over a mere 60 feet, open cutting was the selected crossing option. In addition, Ott Fork forms the border of the Bark Cabin Wild Area. Should boring produce an inadvertent return, there would be no access to retrieve any returns downstream.

Wetland 7

Clearing would occur to construct the timber mat bridge for access. The nearest northern access for Wetland 7 is 7500 feet away. As previously mentioned, equipment and pipe cannot be run on virgin topsoil to a timber mat bridge. Movement of equipment and pipeline supplies on/over topsoil or other incompetent material often found in the A horizon or B horizon of the soil can lead to excessive rutting which can cause flow channelization and sedimentation into the wetland. In addition, permanent impacts would actually increase for a bore as PGE would realign the crossing to make it a straight segment. As such, both Wetland 6 and Wetland 7 would be impacted. Finally, it should be noted that Beran Environmental Services, Inc. noted that Wetland 6 and Wetland 7 were part of a larger wetland complex that expands to the West. Beran noted that this area was extremely hummocky with multiple pocket wetlands. It is likely that this wetland complex is hydrologically connected. When PGE evaluated boring, it was concerned that a boring could result in inadvertent returns within this wetland complex. For these reasons PGE chose to open cut Wetland 7.

Channels 4, 5 & 12.

The Riparian Buffer must be cut to install a timber mat bridge. This is the last crossing prior to the crossing of Bark Cabin Run which is a deeply incised stream valley. All boring equipment would need to be tracked from the pipeline initiation point to these crossings which is 7,600 ft away. Moreover, equipment and pipe cannot be run on virgin topsoil to a timber mat bridge. Movement of equipment and pipeline supplies on/over topsoil or other incompetent material often found in the A horizon or B horizon of the soil can lead to excessive rutting which can cause flow channelization and sedimentation into these channels.

In order to bore these three streams in such close proximity, the contractor would need to bore them together. In total, this would be a 400-500 ft bore. Boring would take roughly 6 times longer than open cutting these streams. In addition, these streams are bedload dominated, high energy streams. It has been observed that there is very little accumulation of fine-grained material. Highly permeable stream media increases the likelihood of returns or loss of waterflow during boring activities. Due to these concerns, the length of the bore, and that the access is needed regardless, PGE selected the open cut method. PGE did reduce the corridor width through this entire section to minimize clearing of the riparian buffer. Finally, it should be noted that these streams are extremely small and are often dry.

Channel 6, 9 & 10

These stream crossings are located in deeply incised and steep valleys. In order for the pipe to physically bend in a steep valley, the location of the bore entry point would have to be a considerable distance away, which increases the distance of the bore and adds greater complexity and increases the probability of inadvertent returns. This increase is due to greater head pressure from the drilling mud caused by the elevation difference between the boring location and the stream crossing. Finally, these streams are relatively straight which indicates that their placement may be controlled by local geological joint patterns or natural fractures. Joints or natural fractures increase the likelihood of inadvertent returns. In addition, if an inadvertent return were to occur, there is no quick/easy access into the streams which would make recovery of any inadvertent returns very difficult and time consuming. Boring the longer section would create additional hydrostatic head which leads to a greater risk of inadvertent returns and greater potential threat to the natural resources which we would be boring under. If we were to bore this section it would take roughly 6 times longer to complete than an open cut. This creates additional risk to the natural resources in the area due to an extended exposure.

These streams also have little to no floodplains and are very small streams. It is infeasible to have room for equipment on these small floodplains to conventionally bore the streams. The two streams in question do not meet the spacing requirements for the necessary boring equipment. This would cause additional workspace requirements, cutting and interfering with the original slope, as well as removing additional trees/underbrush in/near these streams and their riparian buffers. Limited access would also lead to very difficult deliveries of boring equipment to these sites that are very inaccessible and would also create major safety concerns.

It should be noted that the riparian buffer would need to be cut regardless of the method used as there is no access for equipment and pipeline construction supplies except along/through the pipeline corridor. For these reasons, the open cut method was chosen for these crossings.

Wolf Run
Wild Area

Bark Cabin
Wild Area

Station 199+00

Station 116+00

STATE GAME LANDS NO 75

STATE GAME LANDS NO 75

TIADAGHTON STATE FOREST

1 inch = 1,000 feet

Legend

- Wetlands_EADS
- EADS Streams
- Alt 1_Phase 4 Pipeline 2014
- MidStateTrail
- CDR_2023_wetlands
- CDR_2023_Streams
- Streams-Phase_IV_Beran
- Streams
- Phase IV ROW
- 6-19-14 PAD A WETLANDS
- No_Parcels
- Cursory_Wet_Mosaic_Beran
- Wetlands-Phase_IV_Beran
- Landowner Eastern Boundary Pipeline Only
- State Forest
- SGL 75
- Phase IV ROW

N W E S

Wolf Run
Wild Area

Bark Cabin
Wild Area

Station 199+00

Station 116+00

1 inch = 1,000 feet

Legend

- Wetlands_EADS
- EADS Streams
- MidStateTrail
- CDR_2023_wetlands
- CDR_2023_Streams
- Streams-Phase_IV_Beran
- Streams
- Phase IV ROW
- 6-19-14 PAD A WETLANDS
- No_Parcels
- Cursory_Wet_Mosaic_Beran
- Wetlands-Phase_IV_Beran
- Landowner Eastern Boundary Pipeline Only
- State Forest
- SGL 75
- Phase IV ROW

Alternative Analysis

- Alt2
- Alt3
- Alt4
- Alt5
- Alt6

N
W E
S

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ATTACHMENT T:
MITIGATION PLAN

WETLAND & RIPARIAN BUFFER PLANTING
SITE PLAN

RIPARIAN FORESTED BUFFER MONITORING
NOTES

IN-LIEU FEE PROGRAM

PENNSYLVANIA GENERAL ENERGY COMPANY, L.L.C.

120 MARKET STREET
WARREN, PA 16365

TEL: (814) 723-3230
FAX: (814) 723-3502

April 5, 2024

Christopher Yeakel
Aquatic Resource Supervisor
Department of Environmental Protection
208 West Third Street Suite 101
Williamsport, PA 17701

Re: Phase IV Pipeline Mitigation Compensation

Mr. Yeakel –

Pennsylvania General Energy Company, L.L.C. (PGE) is proposing to utilize the PIESCES in-lieu fee program for mitigation compensation necessary by the DEP for the Phase IV Pipeline located in Cummings Township, Lycoming County. PGE has reviewed the RIBITS website of PADEP approved mitigation banks and there are no site approvals near this pipeline area nor any mitigation compensation credit potential for the impacts proposed as part of this project.

Sincerely,

Nathan R. Harris, CSP
President
Pennsylvania General Energy Company, L.L.C.

PIESCES – In-Lieu-Fee

Wetland Credits

	HYD2	**BGC2**	**HAB2**
Wetland 7	0.07	0.07	0.07
$11,000/credit	**$ 770.00**	**$ 770.00**	**$ 770.00**

Stream Credits

	RS	**BGC1**	**HAB1**
Channel 1	0	0	0
Channel 3	0.02	0.05	0
Channel 4	0	0	0
Channel 5	0	0	0
Channel 6	0.01	0.06	0.01
Channel 9	0.01	0.06	0.01
Channel 9A	0	0.05	0
Channel 10	0.01	0.05	0.01
Channel 12	0	0.01	0
	0.05	**0.28**	**0.03**
$50,000/credit	**$2,500.00**	**$14,000.00**	**$1,500.00**

Total Fee: $20,310.00

Wetland Compensation Calculator (Wetland 7)

A_I (acres)	Perm Direct	FG Credit Req.	Perm Indirect	FG Credit Req.	Temp Direct	FG Credit Req.	Temp Indirect	FG Credit Req.	Total FG Credit Req
HYD2	0.00	**0.00**	0.02	**0.07**	0.01	**0.00**	0.03	**0.00**	**0.07**
BGC2	0.00	**0.00**	0.02	**0.07**	0.01	**0.00**	0.03	**0.00**	**0.07**
HAB2	0.00	**0.00**	0.02	**0.07**	0.01	**0.00**	0.03	**0.00**	**0.07**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT FG Credit Req
AdjFact	0.0		0.0		0.0		0.0		
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.88**		**0.88**		**0.88**		**0.88**		**0.00**
R_V (Table 6)	**2**		**2**		**2**		**2**		**0.00**
AFT Multiplier	**0.00**								

Riverine Compensation Calculator (Channel 1)

A_I (acres)	Perm Direct	FG Credit Req.	Perm Indirect	FG Credit Req.	Temp Direct	FG Credit Req.	Temp Indirect	FG Credit Req.	Total FG Credit Req
RS	**0.00**	0.00	**0.000**	0.00	**0.0002**	0.00	**0.001**	0.00	**0.00**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.00**	0.00	**0.006**	0.00	**0.037**	0.00	**0.00**
HAB1	**0.00**	0.00	**0.000**	0.00	**0.0002**	0.00	**0.001**	0.00	**0.00**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.56**		**0.56**		**0.56**		**0.56**		**0.00**
R_V (Table 6)	**3**		**3**		**3**		**3**		**0.00**
AFT Multiplier	**0**								

Riverine Compensation Calculator (Channel 3)

A_I (acres)	Perm Direct	FG Credit Req.	Perm Indirect	FG Credit Req.	Temp Direct	FG Credit Req.	Temp Indirect	FG Credit Req.	Total FG Credit Req
RS	**0.00**	0.00	**0.001**	0.00	**0.002**	0.00	**0.004**	0.00	**0.00**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.011**	0.05	**0.007**	0.00	**0.017**	0.00	**0.05**
HAB1	**0.00**	0.00	**0.001**	0.00	**0.002**	0.00	**0.004**	0.00	**0.00**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.84**		**0.84**		**0.84**		**0.84**		**0.00**
R_V (Table 6)	**2.5**		**2.5**		**2.5**		**2.5**		**0.00**
AFT Multiplier	**0**								

Riverine Compensation Calculator (Channel 4)

A_I (acres)	Perm Direct	FG Credit Req.	Perm Indirect	FG Credit Req.	Temp Direct	FG Credit Req.	Temp Indirect	FG Credit Req.	Total FG Credit Req
RS	**0.00**	0.00	**0.001**	0.00	**0.002**	0.00	**0.002**	0.00	**0.00**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.0004**	0.00	**0.001**	0.00	**0.001**	0.00	**0.00**
HAB1	**0.00**	0.00	**0.001**	0.00	**0.002**	0.00	**0.002**	0.00	**0.00**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.81**		**0.81**		**0.81**		**0.81**		**0.00**
R_V (Table 6)	**2.5**		**2.5**		**2.5**		**2.5**		**0.00**
AFT Multiplier	**0**								

Riverine Compensation Calculator (Channel 5)

A_I (acres)	Perm Direct	**FG Credit Req.**	Perm Indirect	**FG Credit Req.**	Temp Direct	**FG Credit Req.**	Temp Indirect	**FG Credit Req.**	**Total FG Credit Req**
RS	**0.00**	0.00	**0.001**	0.00	**0.001**	0.00	**0.004**	0.00	**0.00**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.001**	0.00	**0.002**	0.00	**0.003**	0.00	**0.00**
HAB1	**0.00**	0.00	**0.001**	0.00	**0.001**	0.00	**0.004**	0.00	**0.00**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.81**		**0.81**		**0.81**		**0.81**		**0.00**
R_V (Table 6)	**2.5**		**2.5**		**2.5**		**2.5**		**0.00**
AFT Multiplier	**0**								

Riverine Compensation Calculator (Channel 6)

A_I (acres)	Perm Direct	**FG Credit Req.**	Perm Indirect	**FG Credit Req.**	Temp Direct	**FG Credit Req.**	Temp Indirect	**FG Credit Req.**	**Total FG Credit Req**
RS	**0.00**	0.00	**0.002**	0.01	**0.004**	0.00	**0.012**	0.00	**0.01**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.015**	0.06	**0.010**	0.00	**0.032**	0.00	**0.06**
HAB1	**0.00**	0.00	**0.002**	0.01	**0.004**	0.00	**0.012**	0.00	**0.01**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.81**		**0.81**		**0.81**		**0.81**		**0.00**
R_V (Table 6)	**2.5**		**2.5**		**2.5**		**2.5**		**0.00**
AFT Multiplier	**0**								

Riverine Compensation Calculator (Channel 9)

A_I (acres)	Perm Direct	FG Credit Req.	Perm Indirect	FG Credit Req.	Temp Direct	FG Credit Req.	Temp Indirect	FG Credit Req.	Total FG Credit Req
RS	**0.00**	0.00	**0.002**	0.01	**0.004**	0.00	**0.011**	0.00	**0.01**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.014**	0.06	**0.006**	0.00	**0.031**	0.00	**0.06**
HAB1	**0.00**	0.00	**0.002**	0.01	**0.004**	0.00	**0.011**	0.00	**0.01**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.83**		**0.83**		**0.83**		**0.83**		**0.00**
R_V (Table 6)	**2.5**		**2.5**		**2.5**		**2.5**		**0.00**
AFT Multiplier	**0**								

Riverine Compensation Calculator (Channel 9A)

A_I (acres)	Perm Direct	FG Credit Req.	Perm Indirect	FG Credit Req.	Temp Direct	FG Credit Req.	Temp Indirect	FG Credit Req.	Total FG Credit Req
RS	**0.00**	0.00	**0.001**	0.00	**0.002**	0.00	**0.005**	0.00	**0.00**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.012**	0.05	**0.006**	0.00	**0.026**	0.00	**0.05**
HAB1	**0.00**	0.00	**0.001**	0.00	**0.002**	0.00	**0.005**	0.00	**0.00**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.82**		**0.82**		**0.82**		**0.82**		**0.00**
R_V (Table 6)	**2.5**		**2.5**		**2.5**		**2.5**		**0.00**
AFT Multiplier	**0**								

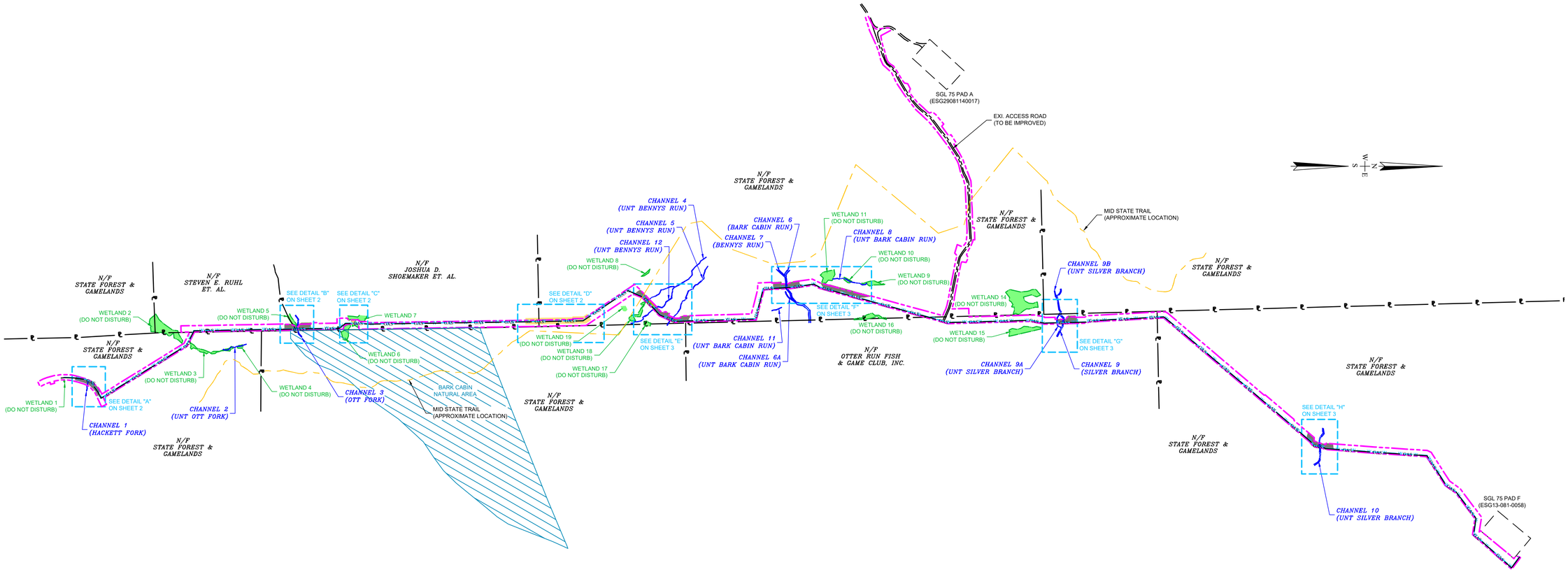
Riverine Compensation Calculator (Channel 10)

A_I (acres)	Perm Direct	**FG Credit Req.**	Perm Indirect	**FG Credit Req.**	Temp Direct	**FG Credit Req.**	Temp Indirect	**FG Credit Req.**	**Total FG Credit Req**
RS	**0.00**	0.00	**0.002**	0.01	**0.004**	0.00	**0.012**	0.00	**0.01**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.012**	0.05	**0.009**	0.00	**0.024**	0.00	**0.05**
HAB1	**0.00**	0.00	**0.002**	0.01	**0.004**	0.00	**0.012**	0.00	**0.01**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.82**		**0.82**		**0.82**		**0.82**		**0.00**
R_V (Table 6)	**2.5**		**2.5**		**2.5**		**2.5**		**0.00**
AFT Multiplier	**0**								

Riverine Compensation Calculator (Channel 12)

A_I (acres)	Perm Direct	**FG Credit Req.**	Perm Indirect	**FG Credit Req.**	Temp Direct	**FG Credit Req.**	Temp Indirect	**FG Credit Req.**	**Total FG Credit Req**
RS	**0.00**	0.00	**0.0002**	0.00	**0.001**	0.00	**0.001**	0.00	**0.00**
HYD1	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
BGC1	**0.00**	0.00	**0.002**	0.01	**0.001**	0.00	**0.002**	0.00	**0.01**
HAB1	**0.00**	0.00	**0.0002**	0.00	**0.001**	0.00	**0.001**	0.00	**0.00**
P_E (Table 5)	3.0		2.0		0.0		0.0		AFT Req
AdjFact	0.0		0.0		0.0		0.0		**0.00**
Adjusted P_E	**3.0**		**2.0**		**0.0**		**0.0**		**0.00**
C_I (L2RAP)	**0.82**		**0.82**		**0.82**		**0.82**		**0.00**
R_V (Table 6)	**2.5**		**2.5**		**2.5**		**2.5**		**0.00**
AFT Multiplier	**0**								

WETLAND & RIPARIAN BUFFER PLANTING
SITE PLAN



LEGEND

- EXISTING CONTOURS
- EXISTING ROAD
- EXISTING ACCESS ROAD
- PROPOSED PERMANENT R/W
- PROPOSED TEMPORARY R/W
- W PROPOSED WATERLINE
- FLOODPLAIN (CALCULATED)
- WATERBAR W/SEDIMENT
- BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- SOIL BOUNDARY
- ABC SOIL TYPE
- EXISTING STREAM
- EXISTING WETLAND
- RIPARIAN BUFFER TREE PLANTING AREAS
- WETLAND SEED MIX AREAS
- RIPARIAN BUFFER SEED MIX AREAS
- BARK CABIN NATURAL AREA

SCALE: 1" = 600' 300' 600' 1200' FEET

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CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
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I do hereby certify to the best of my knowledge, information and belief, that the Erosion and Sedimentation Control and Site Restoration Plan and Post Construction BMP's are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
MAR 28 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS
Revised 12/01/23 Revised and labeled Temp. R/W, changed Perm. R/W color, revised planting and seeding areas, revised Riparian Buffer impact table, added Mid State Trail
03/28/2024 Added Bark Cabin Natural Area, revised sheet number

SHEET 1 OF 4

WETLAND AND RIPARIAN BUFFER PLANTING SITE PLAN

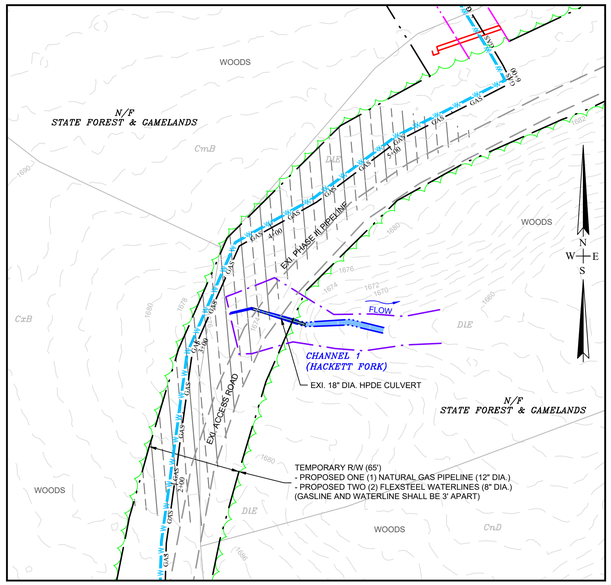
PHASE IV PIPELINE

Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023



DETAIL "A"

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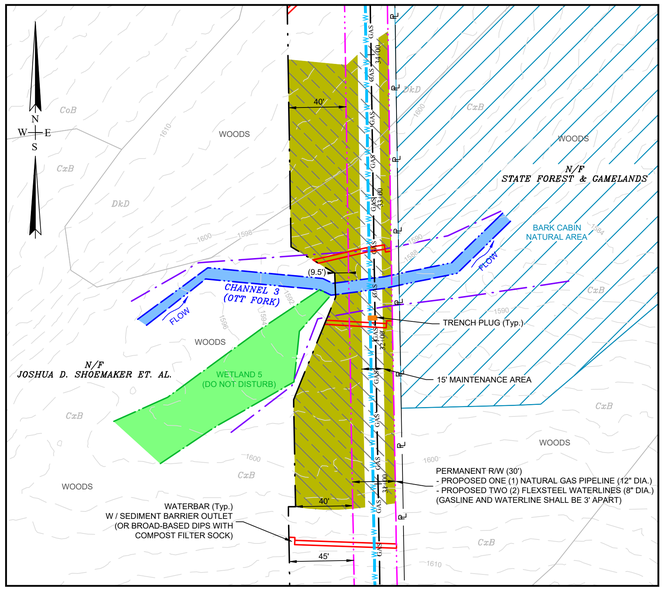

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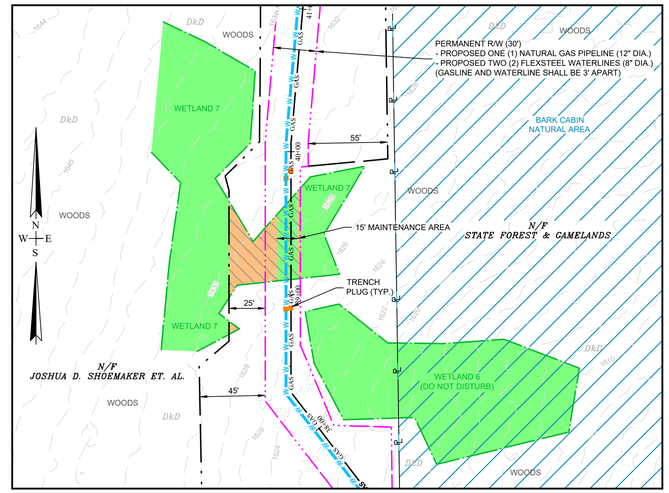

DETAIL "C"

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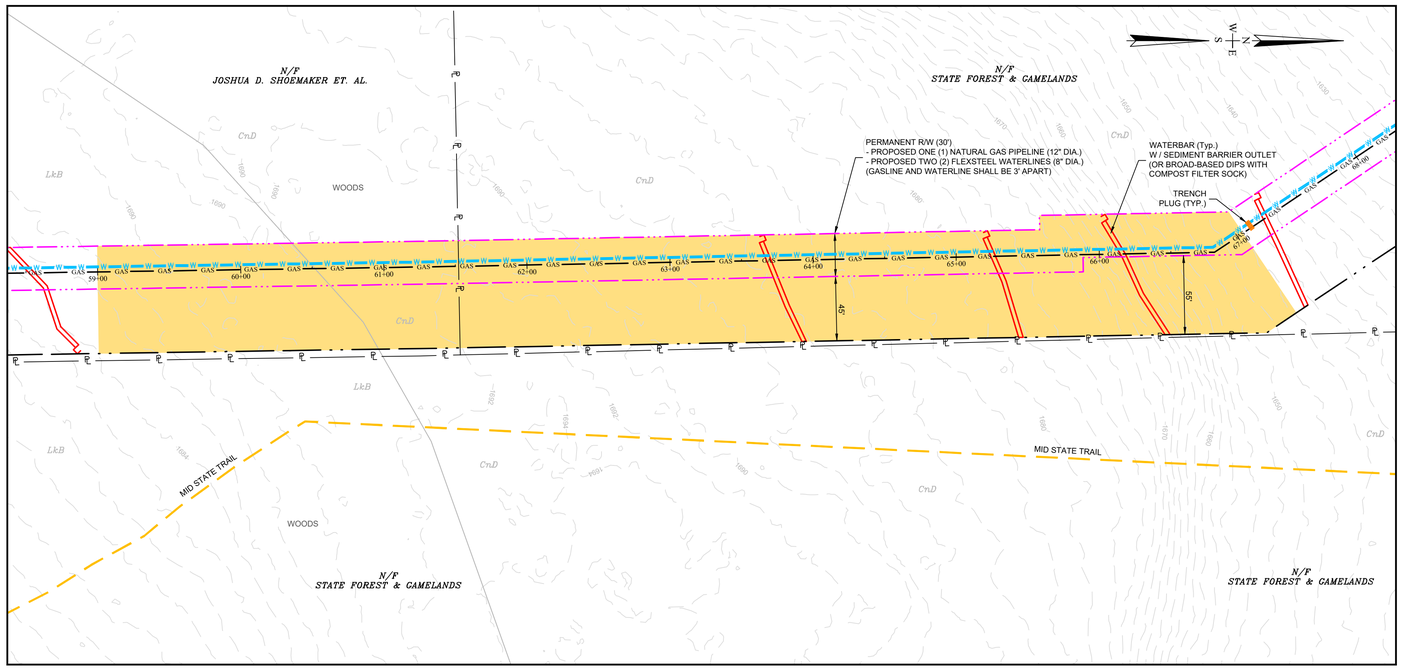

DETAIL "D"

Scale: 1" = 50' 25 50 100 Feet

FORESTED RIPARIAN BUFFER AREAS

RESOURCE		SQ. FT.	ACRES
CHANNEL 3 (OTT FORK)	IMPACTED AREA	15,187	0.349
	IMPACTED AREA TO BE REPLANTED	15,187	0.349

WETLAND AREAS

RESOURCE		SQ. FT.	ACRES
WETLAND 7 (PFO)	IMPACTED AREA	1,524	0.035
	IMPACTED AREA TO BE REPLANTED	1,524	0.035

FORESTED RIGHT-OF-WAY

RESOURCE		SQ. FT.	ACRES
PIPELINE RIGHT-OF-WAY	IMPACTED AREA	62,769	1.441
	IMPACTED AREA TO BE REPLANTED	62,769	1.441

Notes:
1. Trees should not be planted within 5' on either side of the pipeline in order to protect the pipeline from tree roots and to also allow PGE's staff to safely access the line while walking the right-of-way as part of its state and federal pipeline inspection requirements.
2. Plant shrubs 10 feet from wetland to provide additional coverage.
3. Plant live fascines on the steam bank where they can reach the water table.
4. Any plant considered by the inspector to be unacceptable shall be removed by the contractor at the contractors expense from the project site.
5. All plants must be planted within 24 hours of delivery.
6. All plants must be guaranteed for a period of 1 year beyond the date of final acceptance by the owner. Replacements are not limited to 1 time.
7. Plant when conditions are favorable according to the following schedule:
   - Deciduous trees and shrubs: October 15 to November 30 and April 1 to May 15
   - Where local conditions warrant, these dates may be extended with the owners approval.

The following invasive minimization practices shall be used:

1. All equipment must be cleaned prior to coming to site
2. Weed free mulch only should be used in all disturbed areas.

Riparian Forested Buffer Monitoring Notes

1. All Riparian Buffer Tree Planting Areas shall be monitored annually for a minimum of 5 years following installation as specified on the Wetland And Riparian Buffer Planting Site Plan Phase IV Pipeline, with a report submitted to PA DEP annually.
2. Each monitoring event/report shall document the following:
   - Presence of any plant species categorized as noxious or invasive within Pennsylvania shall be identified and eradicated.
   - The survival rate of native tree/shrub installations should achieve 85% survival following year-1 or supplemental planting will be required.
   - Native tree/shrub installations shall achieve 60% uniform canopy cover by year-5 or supplemental planting will be required.

LEGEND

- EXISTING CONTOURS
- EXISTING ROAD
- EXISTING ACCESS ROAD
- PROPOSED PERMANENT R/W
- PROPOSED TEMPORARY R/W
- PROPOSED WATERLINE
- FLOODPLAIN (CALCULATED)
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- SOIL BOUNDARY
- SOIL TYPE
- EXISTING STREAM
- EXISTING WETLAND
- RIPARIAN BUFFER TREE PLANTING AREAS
- FORESTED RIGHT-OF-WAY PLANTING AREAS
- WETLAND SEED MIX AREAS
- RIPARIAN BUFFER SEED MIX AREAS
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- MID STATE TRAIL

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
MAR 28 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

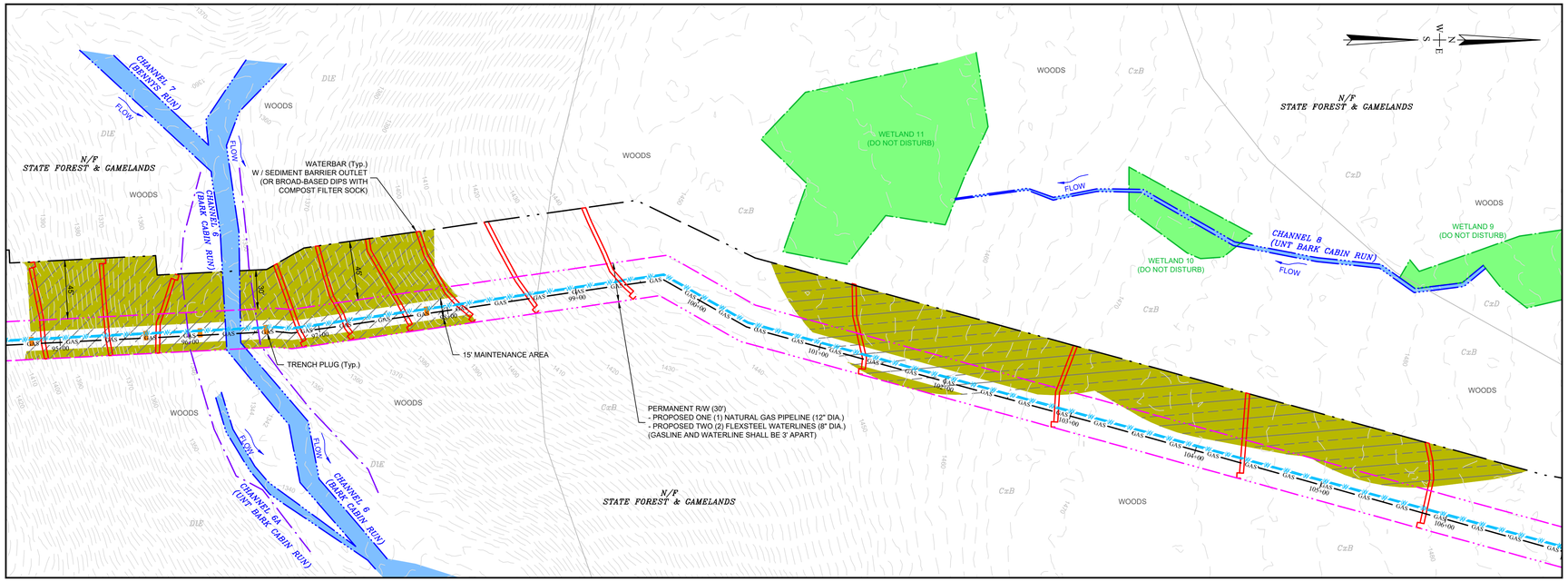
REVISIONS

SHEET 2 OF 4

WETLAND AND RIPARIAN BUFFER PLANTING SITE PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

March 2024



DETAIL "F"

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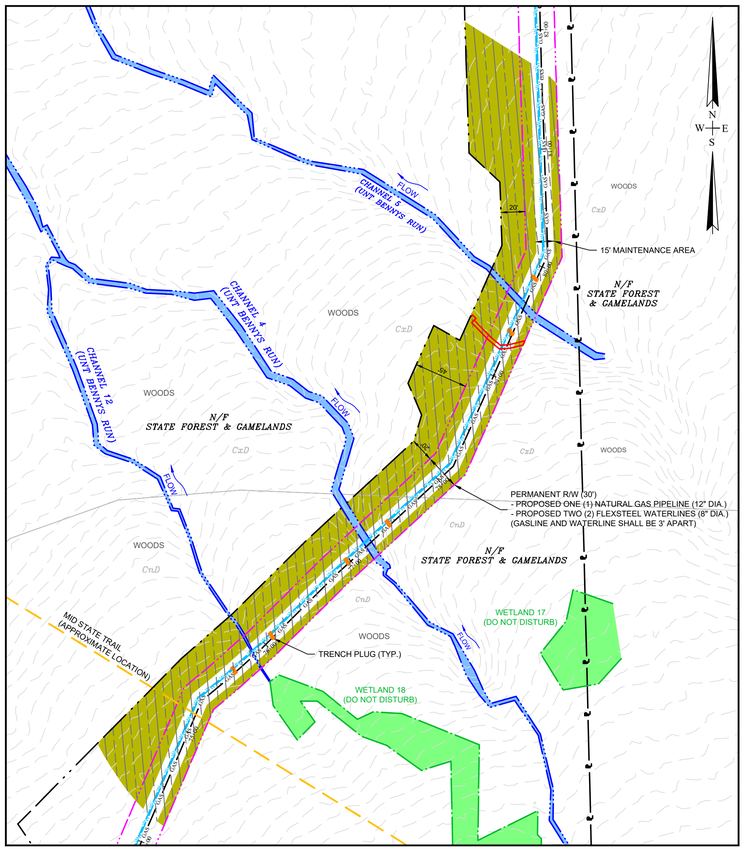

DETAIL "E"

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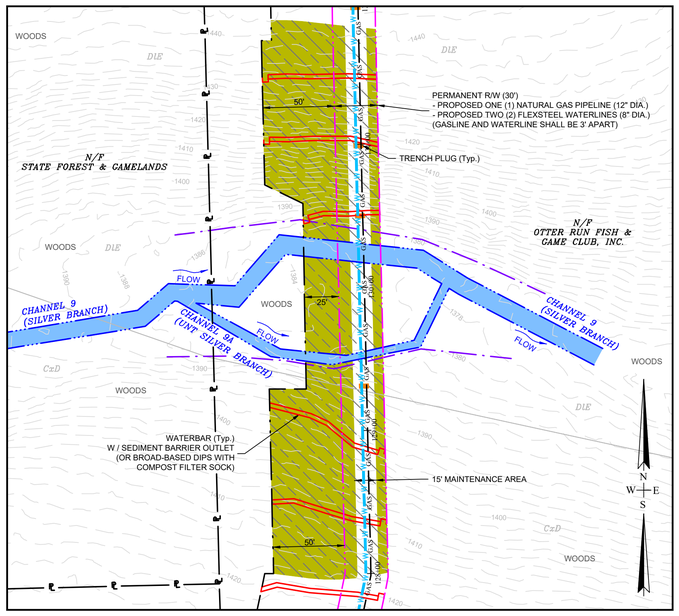

DETAIL "G"

Scale: 1" = 50' 25 50 100 Feet

FORESTED RIPARIAN BUFFER AREAS

RESOURCE		SQ. FT.	ACRES
CHANNELS 4, 5 & 12 (UNT BENNYS RUN)	IMPACTED AREA	42,132	0.967
	IMPACTED AREA TO BE REPLANTED	31,197	0.716
CHANNEL 6 (BARK CABIN RUN)	IMPACTED AREA	22,151	0.509
	IMPACTED AREA TO BE REPLANTED	17,269	0.396
CHANNEL 8 (UNT SILVER BRANCH)	IMPACTED AREA	24,539	0.563
	IMPACTED AREA TO BE REPLANTED	22,558	0.518
CHANNEL 9 (SILVER BRANCH) & CHANNEL 9A (UNT SILVER BRANCH)	IMPACTED AREA	26,274	0.603
	IMPACTED AREA TO BE REPLANTED	20,784	0.477
CHANNEL 10 (UNT SILVER BRANCH)	IMPACTED AREA	22,824	0.524
	IMPACTED AREA TO BE REPLANTED	17,644	0.405

Notes:
1. Trees should not be planted within 5' on either side of the pipeline in order to protect the pipeline from tree roots and to also allow PGE's staff to safely access the line while walking the right-of-way as part of its state and federal pipeline inspection requirements.
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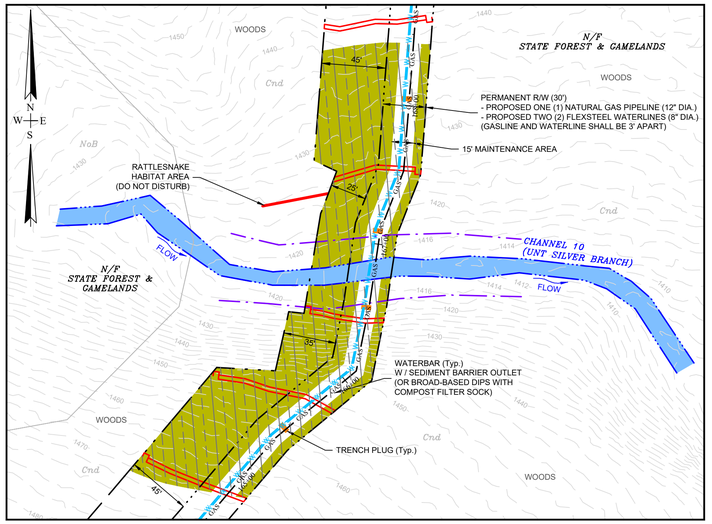
   - Native tree/shrub installations shall achieve 60% uniform canopy cover by year-5 or supplemental planting will be required.



DETAIL "H"

Scale: 1" = 50' 25 50 100 Feet

LEGEND

- EXISTING CONTOURS
- EXISTING ROAD
- EXISTING ACCESS ROAD
- PROPOSED PERMANENT R/W
- PROPOSED TEMPORARY R/W
- PROPOSED WATERLINE
- FLOODPLAIN (CALCULATED)
- WATERBAR W/SEDIMENT BARRIER OUTLET (OR BROAD-BASED DIPS W/ COMPOST FILTER SOCKS)
- TRENCH PLUG
- SOIL BOUNDARY
- SOIL TYPE
- EXISTING STREAM
- EXISTING WETLAND
- RIPARIAN BUFFER TREE PLANTING AREAS
- RIPARIAN BUFFER SEED MIX AREAS
- WETLAND TREE PLANTING AREAS
- WETLAND SEED MIX AREAS

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ERIC DAVID DOUGHERTY PE-057537 MAR 28 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

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REVISIONS
Revised 12/01/23 Revised and labeled Temp. R/W, changed Perm. R/W color, revised planting and seeding areas, revised Riparian Buffer impact table, added Mid State Trail
03/28/2024 Added Bark Cabin Natural Area, changed pipeline and waterline alignments, flipped permanent and temporary right-of-ways between Stations 41+00 to 74+00, moved Detail C to Sheet 2, revised sheet number, added Riparian Forested Buffer Monitoring Note

SHEET 3 OF 4

WETLAND AND RIPARIAN BUFFER PLANTING SITE PLAN

PHASE IV PIPELINE

Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:

BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

STABILIZATION (Non-riparian or Non-Wetland areas) (For use on DCNR grounds)

Temporary stabilization will consist of seeding with Annual Rye Grass (40 lbs./acre), Oats (95 lbs./acre), or Wheat (168 lbs./acre). Mulching can also provide temporary stabilization.

Disturbed areas will be permanently seeded with the following seed mixtures dependent upon slope or suitable alternative.

BOF General Native/Non-Native Seed Mix

Areas with Less Than 15% Slope

3 tons/acre	Lime
500 lb/acre	Fertilizer (10-20-20)
2 lb/acre	Timothy (Phleum pretense)
6 lb/acre	Perennial ryegrass (Lolium perenne)
6 lb PLS/acre	Virginia wildrye (Elymus virginiana)
2 lb PLS acre	Little bluestem (Schizachyrium scoparius)
2 lb PLS/acre	Big bluestem (Andropogon gerardii)
6 lb/acre	White clover (Trifolium repens)
4 lb/acre	Partridge pea (Chamaecrista fasciculata)
0.5 lb/acre	Black-eyed susan (Rudbeckia hirta)

Areas with Greater Than 15 % Slope

3 tons/acre	Lime
500 lb/acre	Fertilizer (10-20-20)
6 lb/acre	Timothy (Phleum pretense)
4 lb/acre	Perennial ryegrass (Lolium perenne)
4 lb PLS/acre	Virginia wildrye (Elymus virginiana)
3 lb PLS/acre	Little bluestem (Schizachyrium scoparius)
3 lb PLS/acre	Sig bluestem (Andropogon gerardii)
3 lb PLS/acre	Indiangrass (Sorghastrum nutans)
6 lb/acre	White clover (Trifolium repens)
4 lb PLS/acre	Deertongue (Dicanthelium clandestinum)
2 lb/acre	Partridge pea (Chamaecrista fasciculata)
0.5 lb/acre	Black-eyed susan (Rudbeckia hirta)

Spring oats or grain rye at a rate of one bushel per acre

A nurse crop of Annual Rye Grass, Spring Oats, or Winter Rye as specified in the temporary stabilization above shall be planted with all permanent seeding mixtures.

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary seeding and mulch at 3 tons per acre.

A soil test is encouraged to determine the appropriate application of soil amendments. In lieu of a soil test, prior to seeding, lime and fertilizer will be applied. Fertilizer (10-20-20) will be applied at the rate of 500 pounds per acre. Lime will be applied at the rate of 3 tons per acre. After seeding, the entire disturbed area will be straw mulched at the rate of 3 tons per acre. Temporary erosion control blankets or other suitable alternatives will be used on slopes 3:1 and greater. Temporary erosion control blankets must be biodegradable and must not contain long-term synthetic netting.

After seeding, the entire disturbed area will be mulched at the rate of 3 tons per acre. Where seeding will not be established prior to winter, additional mulch shall be applied.

Temporary erosion control blankets or other suitable alternatives will be used on slopes 3:1 and greater.

In the course of the earth movement activities and/or drilling operations, unanticipated conditions may require the revision of the plan. If changes are required, the preparer or company field representative will revise the plan and notify the PA Department of Environmental Protection of changes in a timely manner.

STABILIZATION (Non-Riparian or Non-Wetland Areas) (For use on privately owned grounds)

Temporary stabilization will consist of seeding with Annual Rye Grass (40 lbs./acre), Spring Oats (96 lbs./acre - Spring and Summer planting), or Winter Rye (168 lbs./acre - Fall plantings). Mulching can also provide temporary stabilization.

Disturbed areas will be permanently seeded based on site conditions and seasonal considerations. Table 1 below provides a listing of recommended permanent seed mixtures for cool and warm seasons, while Table 2 provides recommended seed mixtures for stabilizing disturbed areas.

Table 1: Recommended Permanent Seed Mixtures Cool and Warm Season Grass

Mixture Number	Season	Species	Seeding Rate (lb./ac.)
1	Cool	Tall fescue, or	79
		Fine fescue, plus	46
		Redtop, or	4
		Perennial ryegrass, plus	19
		Birdsfoot trefoil	8
2	Cool	Birdsfoot trefoil, plus	8
		Tall fescue,	40
3	Cool	Orchardgrass, or	26
		Bromegrass, plus	33
		Birdsfoot trefoil	8
4	Warm	Flatpea, plus	27
		Tall fescue, or	26
		Perennial ryegrass,	25
5	Warm	Deertongue, plus	21
		Birdsfoot trefoil	8
6	Warm	Switchgrass, or	15
		Big Bluestem, plus	15
		Birdsfoot trefoil	8

Table 2: Recommended Seed Mixtures for Stabilizing Disturbed Areas

Site Conditions	Seed Mixture (Select One Mixture)
Cut Slopes and Fills (not mowed)	
Well-drained	2, 4, or 6
Variable drainage	2
Cut Slopes and Fills (mowed)	1
Cut Slopes and Fills (grazed/hay)	1, 2, or 3
Gullies and Eroded Areas	2 or 6
Erosion Control BMPs	
Channels, Drainage Ditches, Trap embankments, etc.	1 or 2
For hay or silage	2 or 3
Right-of-way	
Well-drained	4 or 6
Variable drainage	2
Well-drained areas for grazing/hay	2 or 3

A nurse crop of Annual Rye Grass, Spring Oats, or Winter Rye as specified in the temporary stabilization above shall be planted with all permanent seeding mixtures.

Permanent seeding shall occur during the following time periods:
March 15 to June 1, or
August 1 to October 15
All other times should receive temporary seeding and mulch at 3 tons per acre.

STABILIZATION (Forested Riparian Buffer Areas)

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary stabilization.

After seeding, the entire disturbed area shall be mulched at a rate of 3 tons per acre.

Supplemental planting will be utilized as needed. Substitutions native to USDA Hardiness Zones 5a and 6b are acceptable.

The following planting plan shall be used for all Riparian Buffer Areas:

Seed Mix for Riparian Area
(20 lbs/acre or ½ lb per 1,000 ft2 with a cover crop at 30 lbs per acre)

ERNMX-178: Riparian Buffer Mix or suitable alternative

31.2% Panicum clandestinum, Tioga (Deertongue, Tioga)
20.0% Elymus virginicus, PA Ecotype (Virginia Wildrye, PA Ecotype)
11.8% Andropogon gerardii, 'Niagara' (Big Bluestem, 'Niagara')
10.5% Sorghastrum nutans, 'Tomahawk' (Indiangrass, 'Tomahawk')
5.0% Panicum virgatum, 'Shelter' (Switchgrass, 'Shelter')
4.0% Chamaecrista fasciculata, PA Ecotype (Partridge Pea, PA Ecotype)
4.0% Verbena hastata, PA Ecotype (Blue Vervain, PA Ecotype)
3.0% Juncus effusus (Soft Rush)
3.0% Rudbeckia hirta, Coastal Plain NC Ecotype (Blackeyed Susan, Coastal Plain NC Ecotype)
2.0% Heliopsis helianthoides, PA Ecotype (Oxeye Sunflower, PA Ecotype)
1.0% Asclepias incarnata, PA Ecotype (Swamp Milkweed, PA Ecotype)
0.9% Aster umbellatus, PA Ecotype (Flat Topped White Aster, PA Ecotype)
0.7% Aster lateriflorus (Calico Aster)
0.7% Eupatorium perfoliatum, PA Ecotype (Boneset, PA Ecotype)
0.5% Helenium autumnale, PA Ecotype (Common Sneezeweed, PA Ecotype)
0.5% Monarda fistulosa, Fort Indiantown Gap-PA Ecotype (Wild Bergamot, Fort Indiantown Gap-PA Ecotype)
0.5% Vernonia noveboracensis, PA Ecotype (New York Ironweed, PA Ecotype)
0.4% Solidago patula, PA Ecotype (Roughleaf Goldenrod, PA Ecotype)
0.3% Lobelia siphilitica, PA Ecotype (Great Blue Lobelia, PA Ecotype)

Supplemental Native Woody Tree & Shrub Planting Stock Density Rates for Forested Riparian Areas

Planting Stock Type for Native Woody Plants	Plant Spacing O.C. (Feet)	Approximate Average Stems/Acre
Potted Plants (1 to 2 gallon)	14-16	400
Bare Root Seedlings	6-10	700

Planting Species List for Forested Riparian Areas

Acer rubrum	Red Maple	Potted
Acer saccharum	Sugar Maple	Potted
Quercus prinus (montana)	Chestnut Oak	Potted
Pinus strobus	White Pine	Potted
Kalmia latifolia	Mountain laurel	Potted
Vaccinium angustifolium	Lowbush blueberry	Potted

Supplemental Planting Species List for Forested Riparian Areas
(If species from above are not available)

Acer saccharinum	Silver Maple	Potted
Aronia melanocarpa	Black Chokeberry	Potted
Juglans nigra	Cottonwood	Potted
Liquidamber styraciflua	Sweet Gum	Potted
Quercus rubra	Northern Red Oak	Potted
Quercus alba	White Oak	Potted
Vaccinium sp.	Blueberry	Potted
Viburnum lentago	Nannyberry	Potted

Riparian Forested Buffer Monitoring Notes

1. All Riparian Buffer Tree Planting Areas shall be monitored annually for a minimum of 5 years following installation as specified on the Wetland And Riparian Buffer Planting Site Plan Phase IV Pipeline, with a report submitted to PA DEP annually.
2. Each monitoring event/report shall document the following:
   - Presence of any plant species categorized as noxious or invasive within Pennsylvania shall be identified and eradicated.
   - The survival rate of native tree/shrub installations should achieve 85% survival following year-1 or supplemental planting will be required.
   - Native tree/shrub installations shall achieve 60% uniform canopy cover by year-5 or supplemental planting will be required.

STABILIZATION (WETLAND AREAS)

All wetland areas shall be immediately stabilized by permanent seeding, if possible, following disturbance. Temporary stabilization shall consist of straw mulch at a rate of 3 tons per acre if outside the recommended permanent seeding dates.

Permanent seeding shall occur during the following time periods:

March 15 to June 1, or
August 1 to October 15

All other times should receive temporary stabilization.

After seeding, the entire disturbed area shall be mulched at a rate of 3 tons per acre.

Supplemental planting will be utilized as needed. Substitutions native to USDA Hardiness Zones 5a and 6b are acceptable.

The following planting plan shall be used for all Wetland Areas:

Seed Mix for Wetland Area (20 lbs/acre or ½ lb per 1,000 ft2)

ERNMX-120: OBL-FACW Perennial Food & Cover Wetland Mix or suitable alternative

20.0% Carex vulpinoidea, PA Ecotype (Fox Sedge, PA Ecotype)
20.0% Elymus virginicus, Madison-NY Ecotype (Virginia Wildrye, Madison-NY Ecotype)
15.0% Panicum clandestinum, Tioga (Deertongue, Tioga)
12.5% Carex lupulina, PA Ecotype (Hop Sedge, PA Ecotype)
12.5% Carex lurida, PA Ecotype (Lurid Sedge, PA Ecotype)
11.5% Carex scoparia, PA Ecotype (Blunt Broom Sedge, PA Ecotype)
3.0% Juncus effusus (Soft Rush)
2.0% Carex stipata, PA Ecotype (Awl Sedge, PA Ecotype)
2.0% Leersia oryzoides, PA Ecotype (Rice Cutgrass, PA Ecotype)
1.0% Carex crinita, PA Ecotype (Fringed Sedge, PA Ecotype)
0.5% Scirpus cyperinus, PA Ecotype (Woolgrass, PA Ecotype)

Supplemental Native Woody Trees & Shrub Planting Stock Density Rates for Wetland Areas

Planting Stock Type for Native Woody Plants	Plant Spacing (O.C. (Feet)	Approximate Average Stems/Acre
Potted Plants (1 to 2 gallons)	14-16	400
Bare Root Seedlings	6-10	700
Live Stakes	6-10	700

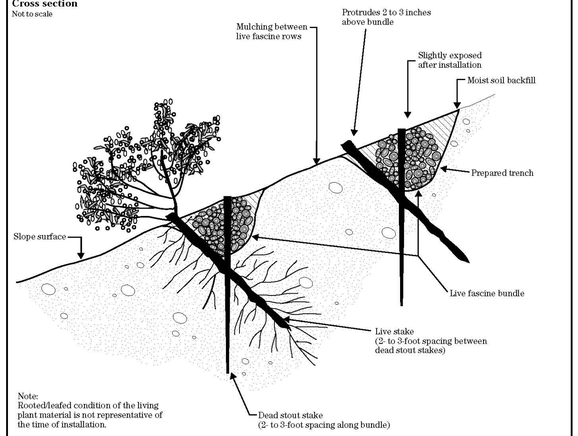
Planting Species List for Wetland Areas

Acer rubrum	Red Maple	Potted
Acer saccharum	Sugar Maple	Potted
Betula nigra	River Birch	Potted
Quercus palustis	Pin Oak	Potted
Photinia (Aronia) melanocarpa	Black Chokeberry	Potted
Kalmia latifolia	Mountain Laurel	Potted
Vaccinium corymbosum	Highbush blueberry	Potted

Supplemental Planting Species List for Wetland Areas
(If species from above are not available)

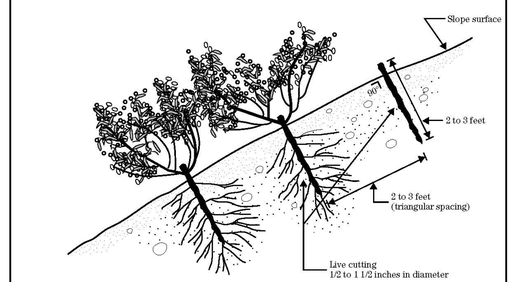
Acer saccharinum	Silver Maple	Potted
Ilex verticillata	Winterberry Holly	Potted
Lindera benzoin	Spicebush	Potted
Physocarpus opulifolius	Ninebark	Potted
Platanus occidentalis	American Sycamore	Potted
Quercus bicolor	Swamp White Oak	Potted
Rosa palustis	Swamp Rose	Potted
Sambucus canadensis	Elderberry	Potted
Viburnum lentago	Nannyberry	Potted
Alnus sp.	Alder	Live Stakes
Cephalanthus occidentalis	Buttonbush	Live Stakes
Cornus amomum	Silky Dogwood	Live Stakes
Salix sp.	Willow	Live Stakes
Carpinus caroliniana	American Hornbeam	Live Stakes
Betula alleghaniensis	Yellow Birch	Live Stakes

Figure 18–10 Live fascine details



(210-EFH, October 1992) 18–21

Figure 18–3 Live stake installation



18–14 (210-EFH, October 1992)

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I do hereby certify to the best of my knowledge, information and belief, that the Erosion and Sedimentation Control and Site Restoration Plan and Post Construction BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER ERIC DAVID DOUGHERTY PE-057537 MAR 28 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS	
Revised 12/01/23	Revised planting species for Forested Riparian Buffer areas and Wetland areas
Revised 03/28/24	Changed sheet number, added Riparian Forested Buffer Monitoring Note

SHEET 4 OF 4
WETLAND AND RIPARIAN BUFFER PLANTING SITE PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

September 2023

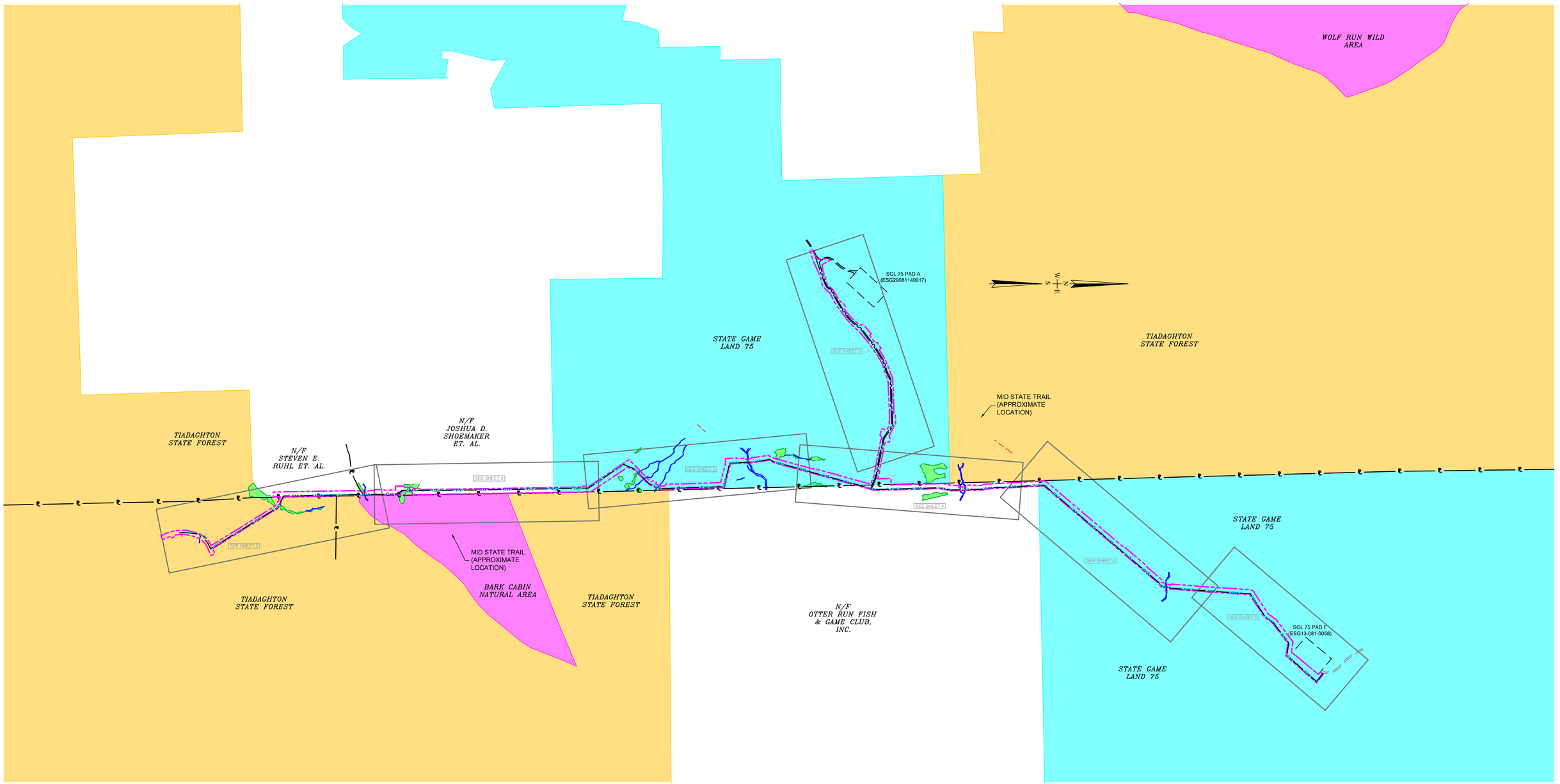
RIPARIAN FORESTED BUFFER MONITORING NOTES

Riparian Forested Buffer Monitoring Notes

1. All Riparian Buffer Tree Planting Areas shall be monitored annually for a minimum of 5 years following installation as specified on the Wetland And Riparian Buffer Planting Site Plan Phase IV Pipeline, with a report submitted to PA DEP annually.

2. Each monitoring event/report shall document the following:
   - Presence of any plant species categorized as noxious or invasive within Pennsylvania shall be identified and eradicated.
   - The survival rate of native tree/shrub installations should achieve 85% survival following year-1 or supplemental planting will be required.
   - Native tree/shrub installations shall achieve 60% uniform canopy cover by year-5 or supplemental planting will be required.

ATTACHMENT U:
DCNR & STATE GAME LANDS SITE PLAN



LEGEND

- PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- PROPOSED WATERLINE
- EXISTING ROAD
- PROPERTY LINE
- EXISTING STREAM
- EXISTING WETLAND
- STATE GAME LANDS 75
- TIADAGHTON STATE FOREST
- DCNR WILDS AREA
- MID STATE TRAIL

SCALE: 1" = 700' 350' 700' 1400' FEET

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Professional Engineer
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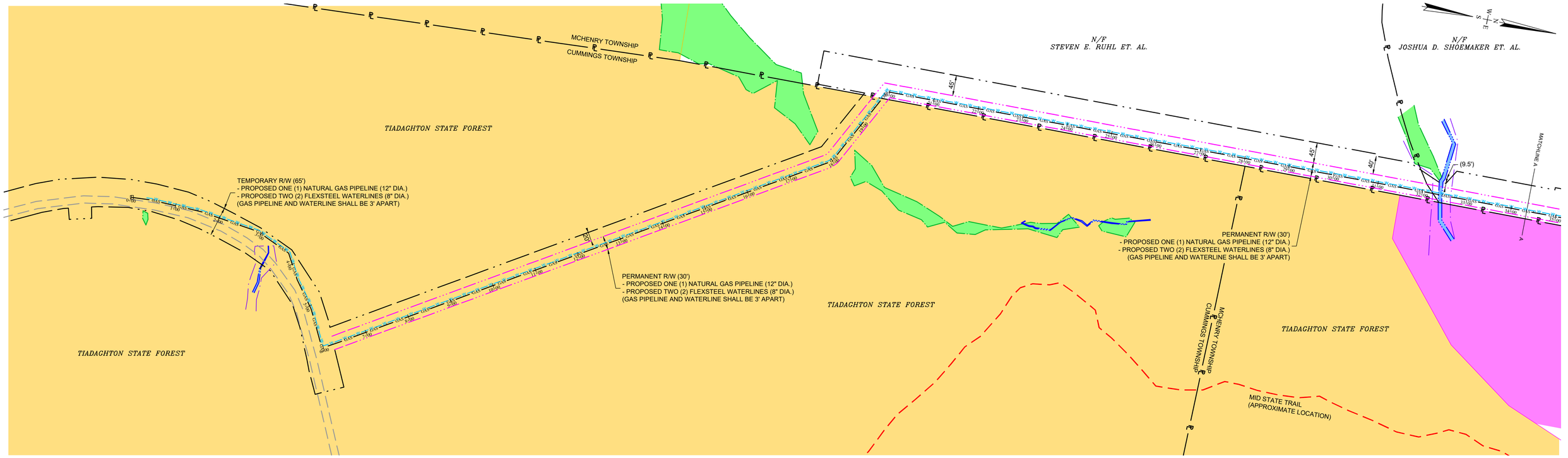
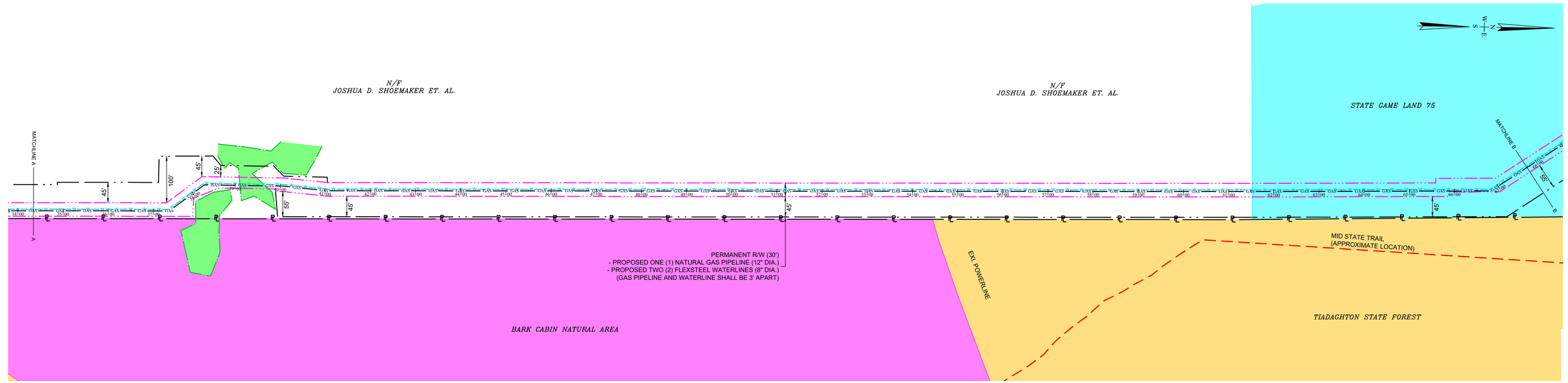
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
MAR 28 2024

REVISIONS	SHEET 1 OF 5
	DCNR & STATE GAME LANDS SITE PLAN
	PHASE IV PIPELINE
	Cummings & McHenry Townships, Lycoming County
	Pennsylvania General Energy Co., LLC, Warren, PA
	Prepared By: BERAN ENVIRONMENTAL SERVICES Boyers, PA 724-735-2766
	March 2024





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- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- PROPOSED WATERLINE
- EXISTING ROAD
- PROPERTY LINE
- FLOODPLAIN (CALCULATED)
- EXISTING STREAM
- EXISTING WETLAND
- STATE GAME LANDS 75
- TIADAGHTON STATE FOREST
- DCNR WILDS AREA
- MID STATE TRAIL

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REVISIONS	SHEET 2 OF 5
	DCNR & STATE GAME LANDS SITE PLAN
	PHASE IV PIPELINE
	Cummings & McHenry Townships, Lycoming County
	Pennsylvania General Energy Co., LLC, Warren, PA
	Prepared By: BERAN ENVIRONMENTAL SERVICES Boyers, PA 724-735-2766
	March 2024

MID STATE TRAIL CROSSING:
TRAIL TO REMAIN OPEN AT ALL TIMES. PLACE CONSTRUCTION SIGNS ALONG THE TRAIL ON BOTH SIDES OF THE PIPELINE RIGHT-OF-WAY (APPROXIMATELY 25' FROM OUTER R/W LINE). MAINTAIN THE TRAIL THROUGH THE RIGHT-OF-WAYS. ANY DISTURBANCES TO THE TRAIL WILL BE STABILIZED IMMEDIATELY. PENNSYLVANIA GENERAL ENERGY WILL WORK WITH THE PGC ON POSSIBLE TRAIL RE-ROUTES AROUND CONSTRUCTION.

MID STATE TRAIL (APPROXIMATE LOCATION)

STATE GAME LAND 75

MATCHLINE B

TIADAGHTON STATE FOREST

PERMANENT R/W (30')
- PROPOSED ONE (1) NATURAL GAS PIPELINE (12" DIA.)
- PROPOSED TWO (2) FLEXSTEEL WATERLINES (8" DIA.)
(GAS PIPELINE AND WATERLINE SHALL BE 3' APART)

N/F
OTTER RUN FISH & GAME CLUB, INC.

EXISTING ROCK OUTCROPPING

C MATCHLINE

D MATCHLINE

EXISTING ACCESS ROAD (WIDTH VARIES) TO BE IMPROVED TO A 16' WIDE ROAD EXCEPT THROUGH THE AREA OF THE RATTLESNAKE HABITAT AREA

EXISTING ACCESS ROAD (TO BE IMPROVED)

EXI. GATE

ROCK OUT CROPPING (DO NOT DISTURB)

E MATCHLINE

LEGEND

- PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- PROPOSED WATERLINE
- EXISTING ROAD
- PROPERTY LINE
- FLOODPLAIN (CALCULATED)
- EXISTING STREAM
- EXISTING WETLAND
- STATE GAME LANDS 75
- TIADAGHTON STATE FOREST
- MID STATE TRAIL

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Eric David Dougherty
Professional Engineer
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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
MAR 28 2024

SCALE: 1" = 100' 50' 100' 200' FEET

REVISIONS

SHEET 3 OF 5

DCNR & STATE GAME LANDS
SITE PLAN
PHASE IV PIPELINE
Cummings & McHenry Townships, Lycoming County
Pennsylvania General Energy Co., LLC, Warren, PA

Prepared By:
BERAN ENVIRONMENTAL SERVICES
Boyers, PA 724-735-2766

March 2024

SGL 75 PAD A
(ESG29081140017)

RATTLESNAKE HABITAT AREA
(DO NOT DISTURB
WITHOUT PFBC APPROVAL)

LIMIT OF DISTURBANCE

LIMIT OF CLEARING

LIMIT OF DISTURBANCE

LIMIT OF CLEARING

MID STATE TRAIL
(APPROXIMATE LOCATION)

MID STATE TRAIL CROSSING:
TRAIL TO REMAIN OPEN AT ALL TIMES. PLACE CONSTRUCTION SIGNS ALONG THE TRAIL ON BOTH SIDES OF THE LIMIT OF DISTURBANCE (APPROXIMATELY 25' FROM OUTER L.O.D.). MAINTAIN THE TRAIL OUTSIDE OF THE IMPROVED ROAD. ANY DISTURBANCES TO THE TRAIL WILL BE STABILIZED IMMEDIATELY. PENNSYLVANIA GENERAL ENERGY WILL WORK WITH THE PGC ON POSSIBLE TRAIL RE-ROUTES AROUND CONSTRUCTION.

D MATCHLINE

TIADAGHTON STATE FOREST

MIDSTATE TRAIL
(APPROXIMATE LOCATION)

STATE GAME LAND 75

ROCK OUT CROPPING
(DO NOT DISTURB)

MATCHLINE F

45'

PERMANENT R/W (30')
- PROPOSED ONE (1) NATURAL GAS PIPELINE (12" DIA.)
- PROPOSED TWO (2) FLEXSTEEL WATERLINES (8" DIA.)
(GAS PIPELINE AND WATERLINE SHALL BE 3' APART)

E MATCHLINE

N/F
OTTER RUN FISH &
GAME CLUB, INC.

STATE GAME LAND 75

LEGEND

- PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- PROPOSED WATERLINE
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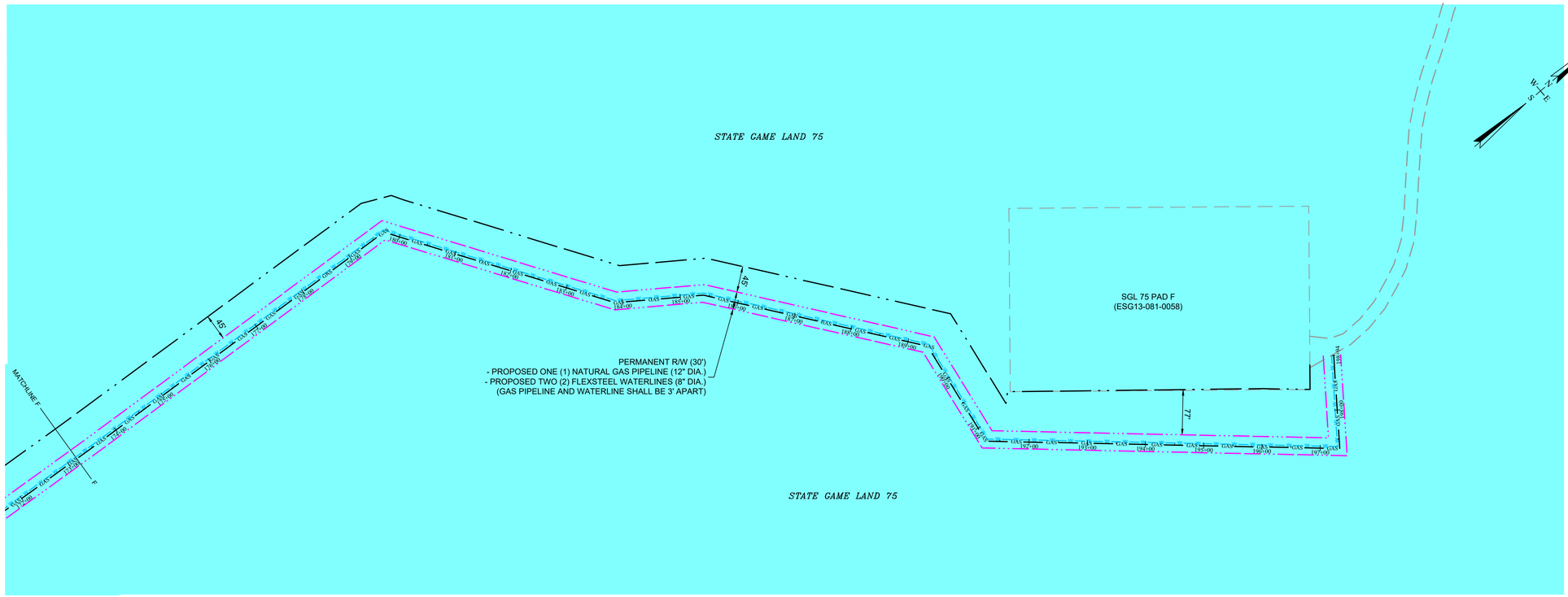
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
MAR 28 2024

SCALE: 1" = 100' 50' 100' 200' FEET

REVISIONS	SHEET 4 OF 5
	DCNR & STATE GAME LANDS SITE PLAN
	PHASE IV PIPELINE
	Cummings & McHenry Townships, Lycoming County Pennsylvania General Energy Co., LLC, Warren, PA
	Prepared By: BERAN ENVIRONMENTAL SERVICES Boyers, PA 724-735-2766
	March 2024



LEGEND

- GAS — PROPOSED NATURAL GAS PIPELINE
- PROPOSED PERMANENT R/W (30')
- PROPOSED TEMPORARY R/W (AS NOTED)
- W — PROPOSED WATERLINE
- EXISTING ROAD
- STATE GAME LANDS 75

SCALE: 1" = 100' 50' 100' 200' FEET

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ERIC DAVID DOUGHERTY
ENGINEER
PE-057537
MAR 28 2024

Eric David Dougherty
Professional Engineer
License # PE-057537

REVISIONS	SHEET 5 OF 5
	DCNR & STATE GAME LANDS SITE PLAN PHASE IV PIPELINE Cummings & McHenry Townships, Lycoming County Pennsylvania General Energy Co., LLC, Warren, PA
	Prepared By: BERAN ENVIRONMENTAL SERVICES Boyers, PA 724-735-2766
	March 2024