



AECOM
715 Washington Boulevard
Williamsport, PA 17701

570.505.1674 tel
570.505.1682 fax

June 10, 2020

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

Attention: Dominic Rocco

Reference: Texas Eastern Transmission, LP
401 Water Quality Certification
Conemaugh River Crossing Project
Westmoreland and Indiana Counties, Pennsylvania

Dear Mr. Rocco,

Texas Eastern Transmission, LP (Texas Eastern or TETLP), a wholly-owned subsidiary of Enbridge Energy Company, Inc. (Enbridge) is requesting authorization from the Pennsylvania Department of Environmental Protection (PADEP) under a Section 401 Water Quality Certification to replace a segment of its Line 12 natural gas pipeline in Derry and Blacklick Townships, Westmoreland and Indiana Counties, Pennsylvania. This project is referred to as the Conemaugh River Crossing Project (Project). Texas Eastern has introduced this Project to PADEP through pre-application meetings.

Please find enclosed an electronic copy of the Section 401 Water Quality Certification for your review.

All work will be performed in accordance with Texas Eastern's Erosion and Sedimentation Control Plan (E&SCP), once approved, which is in compliance with the Federal Energy Regulatory Commission's (FERC) "Upland Erosion Control, Revegetation, and Maintenance Plan" and "Wetland and Waterbody Construction and Mitigation Procedures."

If you have any questions, please do not hesitate to contact Eileen Banach at (860) 888-2249 or eileen.banach@aecom.com.

Yours sincerely,

Eileen Banach
AECOM
Biologist

cc: William Brett, Texas Eastern Transmission, LP



**Clean Water Act Section 401 Water
Quality Certification
Environmental Assessment**

**Conemaugh River Crossing Project
Westmoreland and Indiana Counties,
Pennsylvania**

June 2020

TABLE OF CONTENTS

1.0	GENERAL PROJECT DESCRIPTION	1-1
1.1	PROPOSED FACILITIES.....	1-1
1.1.1	Purpose and Need	1-1
1.2	Location and Description of Facilities.....	1-2
1.2.1	Pipeline Facilities.....	1-2
1.3	Aboveground Facilities in Pennsylvania.....	1-3
1.4	LAND REQUIREMENTS.....	1-3
1.4.1	Pipeline Facilities.....	1-3
1.4.2	Access Roads	1-4
1.4.3	Aboveground Facilities.....	1-4
1.5	CONSTRUCTION PROCEDURES.....	1-4
1.5.1	Standard Construction Methods.....	1-4
1.5.2	Major Waterbody Crossings	1-6
1.5.3	Environmental Training for Construction.....	1-7
1.5.4	Construction Workforce.....	1-7
1.6	OPERATION AND MAINTENANCE PROCEDURES.....	1-7
1.6.1	Maintained ROW.....	1-8
1.6.2	Erosion Control	1-8
1.6.3	Periodic Pipeline and ROW Patrols.....	1-8
2.0	SURFACE WATER RESOURCES.....	2-1
2.1	Existing Waterbodies.....	2-1
2.1.1	Existing Waterbodies.....	2-1
2.2	Existing Wetlands.....	2-2
2.3	Water Quantity and Streamflow.....	2-2
2.3.1	Existing Groundwater Resources.....	2-3
2.3.2	Existing Surface Water Resources	2-3
2.4	Water Quality.....	2-4
2.4.1	Existing Groundwater Quality.....	2-4
	Existing Surface Water Quality	2-4
2.5	Existing Habitat for Threatened and Endangered Species.....	2-4
3.0	PROJECT IMPACTS.....	3-1



3.1	Waterbodies.....	3-1
3.1.2	Operations and Maintenance.....	3-2
3.2	Anticipated Water Withdrawal.....	3-2
3.2.1	Hydrostatic Test Water	3-2
3.2.2	HDD Operations and Buoyancy Control.....	3-2
3.3	Wetlands.....	3-3
3.3.1	Wetland Construction and Operation Impacts.....	3-3
3.3.2	Wetland Effects and Mitigation.....	3-3
3.4	Water Quantity and Streamflow.....	3-4
3.4.1	Groundwater	3-4
3.4.2	Surface Water.....	3-5
3.5	Water Quality.....	3-5
3.5.1	Groundwater Quality.....	3-5
3.5.2	Surface Water Quality	3-5
3.5.3	Sensitive Water Resources.....	3-6
3.6	Habitat for Threatened and Endangered Species.....	3-6
4.0	COMPLIANCE WITH REGULATORY STANDARDS.....	4-1
4.1	FEDERAL	4-1
4.1.1	Section 404 Clean Water Act.....	4-1
4.1.2	Section 401 Water Quality Certification.....	4-1
4.2	Pennsylvania State.....	4-1
5.0	REFERENCES.....	5-1



TABLES

Table 1.2-1 Pipeline Facilities.....	1-2
Table 1.3-1 Land Requirements for Project Facilities in Pennsylvania.....	1-3
Table 2.1-1 Representative Rish Species in the Conemaugh River.....	2-1
Table 3.3-1 Summary of Delineated Wetlands Affected by Construction and Operation.....	3-4

APPENDICES

Appendix A - Alignment Sheet and Erosion and Sediment Control Plans

Appendix B – USGS Project Location Map

Appendix C - Erosion and Sediment Control Plan Narrative

Appendix D - Spill Prevention, Control, and Countermeasure Plan and Preparedness, Prevention, and Contingency Plan

Appendix E – Wetland and Waterbody Delineation Report

Appendix F – Pennsylvania Natural Heritage Program Review Receipt

ACRONYMS AND ABBREVIATIONS

AUX	Auxiliary
CFR	Code of Federal Regulations
CWA	Clean Water Act
DCNR	Pennsylvania Department of Conservation and Natural Resources
EA	Environmental Assessment
eFACTS	Environment, Facility, Application, Compliance Tracking System
Enbridge	Enbridge Energy Company, Inc.
EPA	U.S. Environmental Protection Agency
E&SCP	Erosion and Sediment Control Plan
ESCGP-3	Erosion and Sediment Control General Permit
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
HDD	horizontal directional drill
HUC	Hydrologic Unit Codes
LOD	limits of disturbance
MLV	mainline valve
O&M	operations and maintenance
PA	Pennsylvania
PADEP	Pennsylvania Department of Environmental Protection
PEM	palustrine emergent marsh
PFBC	Pennsylvania Fish and Boat Commission
PFO	palustrine forested
PGC	Pennsylvania Game Commission
PHMSA	Pipeline and Hazardous Materials Safety Administration
<i>Plan</i>	FERC's Upland Erosion Control, Revegetation, and Maintenance Plan
PNHP	Pennsylvania Natural Heritage Program
PPC	Preparedness, Prevention, and Contingency Plan
<i>Procedures</i>	FERC's Wetland and Waterbody Construction and Mitigation Procedures
Project	Conemaugh River Crossing Project
PSS	palustrine scrub-shrub
ROW	right-of-way
SPCC	Spill Prevention, Control, and Countermeasure
SSA	Sole-Source Aquifers
Texas Eastern	Texas Eastern Transmission, LP
TWS	temporary workspace
USACE	United States Army Corps of Engineers
USDOT	U.S. Department of Transportation



USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WHPA	wellhead protection area
WQC	Water Quality Certification
WWF	Warmwater Fishes

1.0 GENERAL PROJECT DESCRIPTION

Texas Eastern Transmission, LP (Texas Eastern), a wholly-owned subsidiary of Enbridge Energy Company, Inc. (Enbridge) proposes to replace a section of their existing Line 12 natural gas pipeline beneath the Conemaugh River in Derry Township, Westmoreland County and Blacklick Township, Indiana County, Pennsylvania (PA). Activities associated with the installation of this pipeline are referred to herein as the Conemaugh River Crossing Project (Project). The Project would entail 467 feet of in-situ replacement of Line 12 on the west side of the Conemaugh River, 1,880 feet of horizontal directional drill (HDD) bore beneath the Conemaugh River (includes 418 feet of new permanent easement), and 248 feet of conventional pipeline in new permanent easement on the east side of the Conemaugh River to connect back to the existing Line 12. Approximately 1,280 feet of the existing Line 12 will be capped, grouted, and left in place. The Line 12 mainline valve (MLV) located in the existing MLV site on the west side of the Conemaugh River will be replaced with a new MLV to support pipeline operations and the Line 12 MLV located in the existing MLV site on the east side of the Conemaugh River will be removed and replaced with a flange connection. No changes to the footprint to the existing valve sites will be required. The existing Line 12 pipe under Newport Road will remain in service to connect the new MLV site east of Newport road to the existing pipeline crossover located at the MLV site east of the Conemaugh River. The associated new aboveground facilities for the Project consist of one new permanent access road and MLV in Indiana County, where the new segment of pipeline connects to the existing Line 12.

This Water Quality Certification (WQC) Environmental Assessment (EA) is being submitted to the Pennsylvania Department of Environmental Protection (PADEP) Regional Permit Coordination Office to receive authorization under Section 401 of the Clean Water Act (CWA). This State authorization is required in concert with receipt of the United States Army Corps of Engineers (USACE) Section 404 authorization.

1.1 PROPOSED FACILITIES

1.1.1 Purpose and Need

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

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

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

With anomaly repair deemed infeasible and Line 12 inoperable Texas Eastern has been temporarily using their Line 19 Auxiliary (AUX) line to continue to meet gas service demands, however this pipeline is too small to continue use indefinitely. Based on studies conducted, Texas Eastern has determined that the existing segment of Line 12 under the Conemaugh River should be abandoned in place and a new segment installed. Texas Eastern has chosen HDD over an open-cut or conventional crossing of the Conemaugh River. HDD will require less wetland impacts by avoiding open cutting the large wetland on the west side of the river (W-CMS-016), as well as avoiding direct impacts to the Conemaugh River itself.

1.2 LOCATION AND DESCRIPTION OF FACILITIES

1.2.1 Pipeline Facilities

The Project's pipeline facilities include a new segment of Texas Eastern's 24-inch Line 12 in Westmoreland and Indiana Counties, PA, beginning at Station 0+00 and ending at Station 26+57. The pipeline facilities are summarized in Table 1.2-1, which provides the proposed Project's pipeline installations, pipeline diameter, approximate length, Station, and county. The Project location map in Appendix B shows the regional location of the Project.

Table 1.2-1
Pipeline Facilities

Facility	Pipeline Diameter and Type	Approx. Length (feet)	Begin Station	End Station	State	County
Line 12	24-inch replacement pipeline	1,230	0+00	12+00	PA	Westmoreland
Line 12	24-inch replacement pipeline	1,365	12+00	26+57	PA	Indiana

1.3 ABOVEGROUND FACILITIES IN PENNSYLVANIA

The Line 12 MLV located in the existing MLV site on the west side of the Conemaugh River will be replaced with a new MLV to support pipeline operations and the Line 12 MLV located in the existing MLV site on the east side of the Conemaugh River will be removed and replaced with a flange connection. The Project requires one new MLV and associated permanent access road on the east side of the Conemaugh River in Indiana County. The new MLV is required to tie in the new segment of Line 12 to the existing Line 12.

1.4 LAND REQUIREMENTS

The construction workspace for the Project would include workspace with Texas Eastern's existing easement, temporary workspace (TWS) outside of the existing easement, new permanent right-of-way (ROW), access roads, and one MLV. Table 1.3-1 includes a summary of all land requirements for construction (temporary impacts) and operation (permanent impacts) of the Project.

A photo-based alignment sheet is included in Appendix A as "Alignment Sheet and Erosion and Sediment Control Plans" and depict the location and configuration of temporary and permanent construction workspace required for the Project. The United States Geological Survey (USGS) figure included as Appendix B depict the location of all proposed workspace. Typical construction workspace configurations have been provided in the Project-specific Erosion and Sediment Control Plan (E&SCP), which is included in Appendix C as "Erosion and Sediment Control Plan Narrative".

Table 1.3-1 Land Requirements for Project Facilities in Pennsylvania

Facility	Approximate Length or size/ No. of Sites	Construction Workspace Within Existing Easement(acres)	Temporary Workspace Outside of Easement (acres)	New Permanent Easement for Construction and Operation (acres)	Total Workspace for Construction (acres)
Line 12	2,595 linear feet/1	8.48	2.75	0.76	11.99
Aboveground Facilities ¹	0.95 (ac)/3	0.00	0.00	0.00	0.00
Access Roads ²	1759 (ft)/4	0.00	0.0	0.24	0.24
Total Project		8.48	2.75	1.00	12.23
1. Workspace for the existing and new aboveground facilities (MLVs) is included in Line 12 workspace. The new MLV is in existing easement, no temporary workspace or new easement is required. All workspace is included in Line 12 workspace. 2. Construction Workspace Within Existing Easement includes new temporary access roads, existing permanent access road acreage is not included. All units in acres and rounded to the nearest 0.01. The totals shown in this table may not equal the sum of addends due to rounding.					

1.4.1 Pipeline Facilities

The Project requires the full width of Texas Eastern's existing ROW on the west and east side of the Conemaugh River, approximately 350 feet on average, for workspace to complete the in-situ replacement

of the Line 12 segment and HDD operation. This footprint would accommodate the following: trench excavation, bank sloping, topsoil segregation, safe construction and restoration activities; HDD entry/exit pits, drill rig, frac tanks, mud pump and fluid system, bentonite storage, tools and auxiliary equipment; new permanent access road and MLV. An additional area outside of the existing ROW is required for temporary workspace on the west side of the Conemaugh River to accommodate the HDD pullback strings. New permanent easement as well as temporary workspace is required in the east side of the Conemaugh River for HDD activities and installation of the new segment of pipeline.

The current workspace requirements are included on the aerial alignment sheets as “Alignment Sheet and Erosion and Sediment Control Plans”. The estimated land requirements for pipeline construction and operations and maintenance (O&M) requirements are presented in Table 1.3-1.

1.4.1.1 New Pipeline Right-of-Way

Texas Eastern has utilized HDD bore to reduce impacts to wetlands and watercourses. The HDD path would be too steep an angle to accommodate an exit within the existing MLV on the east side of the Conemaugh River. The HDD pit must be located outside of the existing ROW, requiring a small segment of new pipeline ROW to connect the HDD pipe to the existing Line 12.

Typical construction and operation ROW widths for new pipeline are shown in the E&SCP (“Erosion and Sediment Control Plan Narrative”). As noted, the new ROW would consist of new 50-foot permanent easement. Workspace outside of this new easement is required for installation of the new pipeline and construction workspace for the HDD exit.

1.4.2 Access Roads

Texas Eastern will utilize an existing permanent road off of Westinghouse Road to access workspace on the west side of the Conemaugh River and an existing permanent access road off of Newport Road to access the existing MLV site on the east side of the Conemaugh River. Two temporary access roads off of Newport Road will be used to access workspace on the east side of the river. The existing roads are currently used to access Texas Eastern’s existing MLV sites and will not require any upgrades or improvements for use during construction. The two temporary roads will be removed and restored after construction. One permanent access road will be installed off of Newport Road, within the existing ROW, to access the new MLV.

1.4.3 Aboveground Facilities

Facilities will be replaced at the existing MLV sites on the east and west side of the river. All facilities will be contained within the existing MLV footprints. One new MLV will be installed as part of the Project on the east side of the Conemaugh River within Texas Eastern’s existing ROW. The MLV will be 100 feet by 100 feet.

1.5 CONSTRUCTION PROCEDURES

1.5.1 Standard Construction Methods

The proposed Project would be constructed in compliance with applicable specifications, Federal regulations and guidelines, and Project-specific permit conditions. Construction of the Project would

commence after ROW and applicable regulatory permits and clearances have been acquired for the Project. Construction activities are expected to begin in February 2021 and be completed in July 2021.

Construction and restoration techniques to be used would be those typical for in-situ replacement, HDD operation, and new pipeline installation. The E&SCP provides detail of such techniques and mitigation measures that would be used for the Project. The Project E&SCP is consistent with the Federal Energy Regulatory Commission's (FERC) Upland Erosion Control, Revegetation, and Maintenance Plan (May 2013 version) (*Plan*) and the FERC's Wetland and Waterbody Construction and Mitigation Procedures (May 2013 version) (*Procedures*). Additional construction techniques and measures that would be employed are described in the Project's Spill Prevention, Control, and Countermeasure (SPCC) Plan and Preparedness, Prevention, and Contingency Plan (PPC) (Appendix D).

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

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

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

Closely following clearing, but prior to grading, erosion controls will be installed at the required locations as outlined in the E&SCP. The construction workspace will be rough graded as necessary to allow for safe passage of equipment and to prepare a work surface for construction activities. However, as stated above, the rootstock of shrubby vegetation in upland areas will be left in the construction workspace wherever possible to encourage natural revegetation and, unless grading is required for safety reasons, wetland vegetation will be cut off at ground level, leaving existing root systems intact. Typically, the grading of the construction workspace will be completed with bulldozers. Backhoes will be used in conjunction with

bulldozers in areas where boulders require removal. Timber mats will be placed over wetlands within the LOD.

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

A trench will be excavated to expose the existing pipeline between the MLV and HDD entry/exit point on the west side of the Conemaugh River, and between the HDD entry/exit and new MLV on the east side of the River. In general, the trenches will be approximately 15 feet wide and 9 feet deep. This is necessary to provide adequate room for safe removal of the existing Line 12 segment and installation of the new pipeline. Excavated material will be placed next to the trench so as to avoid unnecessary movement of machinery across the terrain. These construction activities will not impact any wetlands or watercourses.

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

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

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

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

1.5.2 Major Waterbody Crossings

The Project will cross one major waterbody, the Conemaugh River, via HDD. Directional drilling is an advanced boring method that requires the drilling of a small diameter hole, or pilot hole, along a predetermined design path. The pilot hole is then gradually enlarged until it is sufficient to accommodate

the pipeline being installed. The pipeline may or may not be installed concurrently with the hole enlargement depending upon the final diameter of the enlarged hole and the soil conditions encountered.

Excavation of the drill entry and exit locations would be necessary to contain drilling fluids during all phases of the installation. These fluids and cuttings must be disposed of in an approved manner periodically or at the completion of the crossing installation. The crossing length and cross-sectional geometry are dependent upon the pipeline design parameters, the obstacle to be crossed, and the subsurface conditions.

Although Texas Eastern has commissioned a geotechnical survey and is confident in the current HDD methods and technologies available, it is recognized that such methods contain inherent risks. Texas Eastern has developed an HDD Contingency and Unanticipated Release Plan to mitigate these risks.

1.5.3 Environmental Training for Construction

Environmental training would be required for all land agents, construction personnel and the environmental inspector; and agency personnel would also be invited to the training. This training would include an overview of the FERC *Plan* (FERC, 2013b) and *Procedures* (FERC, 2013a), and detailed sessions that describe the timing, notification and environmental permit conditions required to be implemented and adhered to during construction, restoration and mitigation.

1.5.4 Construction Workforce

There would be one construction spread employed to construct the Project with approximately 40 personnel. In addition, one Environmental Inspector would be assigned to the Project.

1.6 OPERATION AND MAINTENANCE PROCEDURES

Texas Eastern would own, operate, and maintain the pipeline and MLV associated with the Project in accordance with 49 CFR Part 192 and 199 and other applicable regulations. The proposed facilities would be operated and maintained in a manner to ensure that a safe, continuous supply of natural gas reaches each of the delivery points. Maintenance activities would include regularly scheduled ground and overflight surveys. Signs, marker posts, aerial markers, and decals would be painted or replaced to ensure that the pipeline locations would be visible from the air and ground.

The facilities would be patrolled from the air periodically. This would provide information on possible leaks, construction activities, erosion, population density, possible encroachment, and any other potential problems that may affect the safety and operation of the facility. In addition, Texas Eastern contractors would adhere to the “Call Before You Dig” program. Under the “Call Before You Dig” program, anyone planning excavation activities may call a single number to alert all utility companies. Representatives of the utility companies that might be affected then visit the site and mark their facilities so that the excavation can proceed with relative certainty as to the location of all underground lines. Other maintenance functions would include:

- Mowing of the ROW in accordance with the timing restrictions outlined in FERC’s *Plan and Procedures*;
- Periodic inspection of MLVs, water crossings and erosion control devices;
- Maintenance of a supply of emergency pipe, leak repair clamps, sleeves, and other equipment needed for repair activities;

- Periodic internal inspection with in-line inspection tools or “pigs;” and
- Calibration of equipment and transmitters.

No herbicides or pesticides would be used for the clearing or maintenance of the temporary or permanent ROW or within 100-feet of a waterbody. An existing cathodic protection system for the pipeline would be maintained.

1.6.1 Maintained ROW

Texas Eastern would continue to maintain their existing ROW. Within wetlands and riparian areas, the maintained ROW would be reduced to 30 feet. Within the 30-foot maintained ROW in wetlands, trees within 15 feet of the pipeline that could compromise the integrity of the pipeline may be selectively cut and removed from the ROW. A permanent 10-foot wide cleared corridor would be maintained as herbaceous cover through wetlands in accordance with FERC’s *Plan* (FERC, 2013b) and *Procedures* (FERC, 2013a). Maintaining a cleared ROW is required for the following safety reasons:

- For pipeline patrols and corrosion surveys;
- For emergency repairs of the pipeline; and
- For visibility during aerial patrols.

1.6.2 Erosion Control

Erosion problems on the pipeline ROW would be identified and repaired as necessary.

1.6.3 Periodic Pipeline and ROW Patrols

Erosion control devices would be regularly inspected and maintained during periodic pipeline and ROW patrols, including:

- Infiltration trench;
- Water bars;
- Riverbanks;
- Other conditions that could affect operation of the pipeline.

2.0 SURFACE WATER RESOURCES

The following section details the resources identified along the proposed Project including waters of the United States (U.S.), which are regulated and protected by the CWA and require federal and state authorization for any proposed impacts, discharges, or temporary impacts to water quality. Waterbodies and wetlands were field delineated in 2016 and 2020; delineations conducted in 2016 were also field-verified during subsequent delineations in 2020. Identification of regulated wetland and waterbody boundaries occurred within the Project limits of disturbance (LOD).

Information regarding fisheries and designated and existing uses was collected through online review of digital geographic information system (GIS) data layers published by PADEP and the PA Fish and Boat Commission (PFBC).

2.1 EXISTING WATERBODIES

2.1.1 Existing Waterbodies

The Project would cross one waterbody, the Conemaugh River, classified as warmwater fisheries (WWF) (Commonwealth of Pennsylvania, 2009) via HDD, resulting in no surficial impacts to the banks or substrate. The waterbody is denoted as S-JLK-037 on plans provided in Appendix A. Warmwater streams and rivers typically are slow-moving bodies of water with soft substrates of sand and silt and are less oxygenated than coldwater streams and rivers. These waterbodies are unsuitable for the propagation of trout and are not capable of supporting a stocked trout population.

Table 2.1-1 lists common fish species for the Conemaugh River (WWF). For more details about the Conemaugh River, refer to Appendix E.

Table 2.1-1
Representative Fish Species in the Conemaugh River

Common Name	Scientific Name
Warmwater Fish	
Largemouth bass	<i>Micropterus salmoides</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Channel catfish	<i>Ictalurus punctatus</i>
Bluegill	<i>Lepomis macrochirus</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Green sunfish	<i>Lepomis cyanellus</i>
Brown bullhead	<i>Ameiurus nebulosus</i>
Yellow bullhead	<i>Ameiurus natalis</i>
Yellow perch	<i>Perca flavescens</i>

Common Name	Scientific Name
Bluntnose minnow	<i>Pimephales notatus</i>

Sources: PFBC 2020

2.2 EXISTING WETLANDS

Texas Eastern identified, located, classified and delineated wetland resources within and adjacent to the Project area through field surveys conducted in 2016 and 2020. Jurisdictional wetlands crossed by the Project were field delineated in accordance with the USACE Wetlands Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (USACE; 2014, 2012). During the site investigations, four (4) wetlands were delineated within the Project area. The limit of the site investigation was defined by the easement limits of Texas Eastern's existing pipeline ROW and temporary workspace outside the existing ROW.

The *Wetland and Watercourse Delineation Report* located within Appendix E contains information pertaining to the delineation process utilized to identify and delineate the wetlands found within the Study Area. This report also contains wetland and watercourse data forms and photos of the identified resources. Figure 2 – Plan View located within the *Wetland and Watercourse Delineation Report* (Appendix E), both at a scale of 1:2,400 depict all of the wetlands and watercourses delineated within the Study Area as well as within the LOD for the Project. These features are all labeled with unique identifiers and their classifications.

The wetlands within the Study Area were classified as PEM, PEM/PSS/PFO, and PEM/PSS wetland type. The most common dominant herbaceous plant species observed were *Juncus effusus*, *Microstegium vimineum*, *Chamaedaphne calyculata*, *Fallopia japonica*, *Juncus tenuis*, and *Carex crinita*. The most common Sapling-Sapling/Shrub species were *Frangula alnus*, *Ulmus Americana*, *Fraxinus pennsylvanica*, *Acer rubrum*, *Cornus racemosa*, *Platanus occidentalis*. The most common tree species were *Platanus occidentalis*, *Fraxinus pennsylvanica*, and *Acer rubrum*.

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

2.3 WATER QUANTITY AND STREAMFLOW

The following sections detail the existing water resources present within the limits of the Project as it pertains to groundwater and surface water.

2.3.1 Existing Groundwater Resources

2.3.1.1 Aquifers

Bedrock Aquifers

Groundwater resources include all waters beneath the earth's surface and storage at any given time. The proposed Project is underlain by the Paleozoic clastic and carbonate aquifers of the Pittsburgh Low Plateau Section of the Appalachian Plateaus Physiographic Province. The Appalachian Plateaus Physiographic Province consists primarily of sandstone, siltstone, and shale (DCNR, 2000).

Principal Aquifers

Principal aquifers are the regionally extensive aquifer or aquifer system with the potential to be used as a source of potable water. The Project crosses through PA aquifers (Trapp and Horn, 1997). Pennsylvanian aquifers are in Paleozoic sedimentary rocks that are flat-laying or gently folded. The rocks consist mostly of shale, sandstone, conglomerate, and carbonate rocks.

Wellhead Protection Areas

A wellhead protection area (WHPA) is defined by the U.S. Environmental Protection Agency (EPA) as the surface and subsurface area surrounding a water well or well field supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well field. The Project does not cross any WHPAs.

Sole Source Aquifers

Sole-Source Aquifers (SSA) are defined by the EPA as aquifers which supply at least 50 percent of the drinking water consumed in the area overlying the aquifer. The Project does not cross any SSAs (EPA, 2020).

2.3.2 Existing Surface Water Resources

The Project is located within one (1) major watershed subregion: the Allegheny River, [Hydrologic Unit Code (HUC) 0501]; one (1) major basin: Conemaugh (HUC 050100); and two (2) watersheds: Conemaugh River (HUC 0501000710) and Blacklick Creek (HUC 0501000709) (USGS, 2015, Natural Resources Conservation Service (NRCS), 2020). Each hydrologic unit has a unique HUC that is two to twelve digits long, based on six levels of classification: 2-digit HUC first-level (region), 4-digit HUC second-level (subregion), 6-digit HUC third-level (basin), 8-digit HUC fourth-level (subbasin), 10-digit HUC fifth-level (watershed), and 12-digit HUC sixth-level (subwatershed).

Surface water resources identified in the Project LOD includes one river, the Conemaugh River. The Conemaugh River would be crossed via HDD with no surficial impacts. Further information about this river is in the Wetland Delineation Report in Appendix E.

2.4 WATER QUALITY

2.4.1 Existing Groundwater Quality

Potential for contaminated groundwater areas in PA were analyzed using data from the PADEP Environment Facility Application Compliance Tracking System (eFACTS) (PADEP, 2020). The Project is located in an undeveloped area where impacts from manmade pollution are unlikely. No sites within a 300-foot survey corridor of the Project facilities were identified as having potential groundwater contamination.

Existing Surface Water Quality

2.4.1.1 Impaired Surface Waters and Waterbodies with Contaminated Sediments

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

2.4.1.2 Sensitive Surface Waters

The Project is not located in or within 100 feet of a national natural landmark, national wildlife refuge, or federal or local or private wildlife or plant sanctuaries (USFWS 2020). It is also not located in or within 100 feet of a national wild or scenic river, PA's Scenic Rivers System, or any areas designated as a Federal Wilderness Area (NPS, 2020; DCNR 2020).

2.5 EXISTING HABITAT FOR THREATENED AND ENDANGERED SPECIES

A signed copy of the PA Natural Heritage Program (PNHP) Project Environmental Review Receipt is provided within Appendix F of this permit application. The PNHP review resulted in "No Known Impacts" for threatened and/or endangered species under the jurisdiction of the PA Department of Conservation and Natural Resources (DCNR), PA Game Commission (PGC), PFBC, and United States Fish and Wildlife (USFWS).

3.0 PROJECT IMPACTS

The proposed Project has been designed to avoid and minimize impacts to environmental resources; however, construction and operation of the pipeline would result in unavoidable impacts and temporary discharges. The following section details these impacts and the avoidance and minimization measures that have been applied to the Project to limit the discharges and temporary impacts to waters of the U.S., as currently defined by the USACE.

3.1 WATERBODIES

Texas Eastern must replace a segment of its existing Line 12 beneath the Conemaugh River in order to restore safe operation. To reduce impacts to the Conemaugh River Texas Eastern has elected to install this new segment via HDD bore, which will eliminate surficial impacts to the river's banks, bed, and riparian areas that would have been incurred with conventional construction methods.

The proposed Project would be constructed in compliance with applicable specifications, federal regulations and guidelines, and project specific permit conditions. Construction and restoration techniques would be typical for pipeline construction. The E&SCP provides detail of such techniques and mitigation measures that may be used for the Project. The Project E&SCP is consistent with FERC's *Plan* (FERC, 2013b) and *Procedures* (FERC, 2013a). Additional construction techniques and measures that may be employed are provided in the SPCC Plan.

3.1.1.1 Pipeline Operation Effects and Mitigation

The Project facilities would be operated and maintained in a manner to ensure that a safe, continuous supply of natural gas reaches each of the delivery points. No herbicides or pesticides would be used for the clearing or maintenance of the temporary or permanent ROW or within 100-feet of a waterbody. The existing permanent easement will continue to be maintained through periodic mowing and the new permanent easement will be maintained in a manner consistent with the landowner's uses.

3.1.1.2 Aboveground Facility Construction and Operation Effects and Mitigation

Modifications to two existing MLV sites will occur entirely within the current MLV footprints and will have no impacts to wetlands, watercourses, or natural features. The site design for the new MLV would avoid impacts to wetlands and watercourses as well as encroachment upon, disturbance of, and alteration to natural features, which are sensitive to stormwater impacts. Once the facilities are constructed, the site would be stabilized with gravel cover, as indicated in the E&SCP. The stormwater BMPs for this Project have been planned to minimize the extent of the proposed earth disturbance, maximize protection of existing drainage features and vegetation, minimize soil compaction, and employ measures and controls that minimize the generation of increased stormwater runoff. An infiltration trench will be installed to manage increased stormwater runoff associated with the new MLV and its permanent access road.

3.1.2 Operations and Maintenance

O&M plans would incorporate measures to protect surface waters as applicable. No herbicides or pesticides would be used for the clearing or maintenance of the temporary or permanent ROW or within 100-feet of a waterbody. Runoff would be controlled with approved BMPs as part of the approved E&SCP.

3.2 ANTICIPATED WATER WITHDRAWAL

Texas Eastern anticipates obtaining water from the Conemaugh River at a point south of the Project crossing. Water will be necessary for hydrostatic testing of the pipeline and HDD operations. Texas Eastern has previously obtained water from the Conemaugh River at the proposed location for use in maintenance activities conducted in the vicinity of the Project.

3.2.1 Hydrostatic Test Water

In compliance with USDOT specifications, Texas Eastern would conduct hydrostatic testing on the pipeline segment prior to placing the pipeline in-service. Water would be used to conduct hydrostatic testing of the new pipeline and piping associated with aboveground facilities. No chemicals would be added to hydrostatic test waters. In accordance with FERC's *Procedures* (FERC, 2013a), Texas Eastern would notify PADEP at least 48 hours before testing activities as applicable. Texas Eastern would also conduct hydrostatic testing in accordance with the following:

- Water would be obtained from the Conemaugh River at a point south of the Project site and trucked to the Project site.
- One hundred percent radiographic inspection of all pipeline section welds would be performed, or pipeline sections would be hydrotested before installation under waterbodies or wetlands.
- Hydrostatic testing would be performed on all pipeline sections prior to installation under waterbodies or wetlands via HDD.
- The SPCC Plan would address secondary containment and refueling of pumps used for hydrostatic testing within 100 feet of any waterbody or wetland.
- Intake hoses would be screened to minimize the potential for entrainment of fish.
- Adequate flow rates would be maintained to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users. The flow rates for the water withdrawals would be sufficiently small in rate and quantity that the impacts on streamflow and the ecosystems that they support are negligible.
- After hydrostatic tests are completed, the water will be trucked off-site for discharge at an appropriate facility, no water will be discharged on site.

Texas Eastern anticipates approximately 42,000 gallons of water from the Conemaugh River would be required for hydrostatic testing.

3.2.2 HDD Operations and Buoyancy Control

Texas Eastern estimates that approximately 200,000 gallons of water will be need for HDD operations and buoyancy control. To regulate cutting tool temperature and assist in the movement of drill cuttings or spoil out of the bore hole, HDD construction techniques require the use of a drilling mud or fluid constituted mainly of water and a small proportion of bentonite. Bentonite is an inert, naturally occurring, hydrophilic, non-toxic powdered clay which swells extensively when it comes in contact

with water. As the clay takes on water, it creates a viscous fluid which helps to lubricate the drilling equipment and forms an impervious coating along the walls of the bore-hole.

The drilling mud is typically mixed onsite in a large mixing tank before being pumped through the drill pipe to the terminus of the bore-hole. After being extruded at the terminus of the drill head, the drilling mud moves back up the borehole between the drill pipe and the borehole walls to either the exit or entry pit. Once the drilling mud is in the exit or entry pit, it is processed to remove cutting debris from the mixture before returning to the mixing tank to be reused in the drilling process. A portion of the drilling fluid, which will contain the cuttings from the borehole, will be allowed to dry before being removed to an approved material disposal facility such as a landfill or other similar approved disposal facility.

3.3 WETLANDS

Appendix E describes wetlands crossed by the Project area that were identified within the LOD and the plans in Appendix A depicts regulatory classifications and proposed crossing methods of those wetlands. Each wetland documented during the field delineations was assigned a unique identification (ID) that includes the surveyor initials and a three digit number (e.g., 001, 002, 003), for example, W-CMS-016.

3.3.1 Wetland Construction and Operation Impacts

The Project has been designed to avoid wetland impacts where practicable. Texas Eastern has chosen HDD over an open-cut or conventional crossing of the Conemaugh River because HDD will require less wetland impacts by avoiding open cutting the large wetland on the west side of the river (W-CMS-016), as well as avoiding direct impacts to the Conemaugh River itself.

In accordance with the construction methods outlined in the E&SCP, construction workspace would include the width of the existing ROW as well as temporary workspace outside of the ROW. Temporary workspace will be required outside of the existing ROW to provide a straight corridor for handling pipe on the west side of the Conemaugh River where the ROW changes direction, in which to prefabricate the pipeline into one continuous section in preparation for the pull-back. Construction workspace necessary for HDD operations would require temporary matting of wetlands in the construction workspace.

Construction activities that could affect wetland vegetation, soils, and hydrology include clearing, use of heavy equipment that could cause soil mixing and compaction and fuel handling. Impacts on wetlands during Project construction would include disturbance of soils and hydrology, and removal of vegetation. Texas Eastern would comply with any mitigation requirements and permit conditions in its CWA Section 404 permits and Section 401 certifications.

3.3.2 Wetland Effects and Mitigation

Texas Eastern has designed the Project to avoid wetland impacts where practicable have minimized impacts to only those necessary to safely construct the Project. One PEM/PSS and one PEM/PFO wetland will be crossed via temporary structures and used as workspace during construction operations resulting in 1.96 acres of temporary impact (1.36 acres in wetland W-BJM-011 and 0.60 acres of impact in wetland W-BJM-010). The HDD operation will install a new segment of Line 12 beneath one PEM wetland resulting in 0.03 acres of permanent impact. Table 3.3-1 lists potential wetland disturbance acreages (by wetland type) for wetlands crossed by the pipeline facilities.

Table 3.3-1
Summary of Delineated Wetlands Affected by Construction and Operation

Cowardin Classification	Length Crossed (feet)	Wetland Area Temporarily Affected (acre)	Acreage of PFO Permanently Converted (acre)
PEM	800	1.78	-
PFO	160	0.10	0.10
PSS	138	0.08	-

Because PEM and PSS wetlands temporarily matted for workspace would be restored to pre-construction conditions and allowed to revegetate, no long-term or permanent impacts to PEM or PSS wetlands would result from the pipeline. In previous years Texas Eastern has not maintained the extent of their ROW resulting in a small amount of PFO wetland within the existing ROW. In order to safely conduct the Project, Texas Eastern must clear the extent of their ROW for workspace and will maintain it during subsequent operation of the pipeline. This will result in 0.10 acres of PFO wetland conversion. Texas Eastern assumes a mitigation of 1:1 will be required to offset the conversion of PFO wetland to PEM. To provide this, Texas Eastern intends to purchase off-site mitigation credits at a ratio of 1:1 (0.10 acres). Details of the plan/agreement will be discussed and shared with PADEP prior to issuance of the permit authorization.

3.4 WATER QUANTITY AND STREAMFLOW

3.4.1 Groundwater

The Project is not anticipated to have significant impacts on groundwater supply. Texas Eastern proposes to implement BMPs designed to avoid, reduce, and/or mitigate potential impacts on groundwater during construction and operation as detailed within the Project E&SCP. Texas Eastern would adhere to practices related to groundwater protection, including specifications for trench breakers and dewatering. As engineering design progresses, potential groundwater effects would be evaluated, and mitigation measures would be implemented where appropriate.

Construction activities that could affect groundwater include clearing of vegetation, and dewatering of the trench and bore pits, soil mixing and compaction, and fuel handling. Impacts could include changes in the volume and rate of groundwater infiltration and alteration of groundwater flows. Clearing and grading of the ROW and construction workspaces would remove vegetation that could act as a filter for groundwater recharge and/or rate of recharge. In accordance with FERC's *Plan* and Texas Eastern's E&SCP, vegetation would only be cleared where necessary and would be allowed to re-vegetate once construction was complete. Excavation would typically occur at depths that are shallower than the aquifers in the Project area; thus, excavation is not expected to affect groundwater. Any impacts from trench dewatering, including changes in the volume or rate of groundwater infiltration, would be short-term and temporary.

Soil mixing and compaction during construction could change the volume or rate of groundwater infiltration. Texas Eastern would implement measures identified in FERC's *Plan* and E&SCP, such as using equipment mats in areas of saturated soils, to minimize impacts. Texas Eastern would de-compact any soils compacted by pipeline construction activities prior to completion of restoration and revegetation. Severely

compacted agricultural areas would be plowed with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, the subsoil would be plowed before replacing the segregated topsoil. If subsequent construction and cleanup activities result in further compaction, additional tilling would be conducted.

3.4.2 Surface Water

Texas Eastern does not anticipate any direct impacts to surface water resources from construction or operation of the Project. Utilizing HDD will avoid surficial impacts to the Conemaugh River and the new MLV has been sited to avoid surface water resources. The stormwater BMPs for this Project have been planned to minimize the extent of the proposed earth disturbance, maximize protection of existing drainage features and vegetation, minimize soil compaction, and employ measures and controls that minimize the generation of increased stormwater runoff. An infiltration trench will be installed to manage increased stormwater runoff associated with the new MLV and its permanent access road.

3.5 WATER QUALITY

3.5.1 Groundwater Quality

Construction activities that could affect groundwater include clearing of vegetation, excavation, and dewatering of the trench and bore pits, soil mixing and compaction and fuel handling. Impacts could include changes in the volume and rate of groundwater infiltration, groundwater contamination, and alteration of groundwater flow and well yields. Clearing and grading of the ROW and construction workspaces would remove vegetation that could act as a filter for groundwater recharge. In accordance with Texas Eastern's E&SCP, vegetation would only be cleared where necessary and would be allowed to re-vegetate once construction was complete. Any impacts from trench dewatering, including changes in the volume or rate of groundwater infiltration, would be short-term and temporary. Soil mixing and compaction during construction could change the volume or rate of groundwater infiltration. Texas Eastern would implement measures identified in its E&SCP, such as using equipment mats in areas of saturated soils, to minimize impacts. Texas Eastern would de-compact any soils compacted by pipeline construction activities prior to completion of restoration and revegetation. Severely compacted agricultural areas would be plowed with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, the subsoil would be plowed before replacing the segregated topsoil. If subsequent construction and cleanup activities result in further compaction, additional tilling would be conducted.

Groundwater contamination could occur from an inadvertent spill of fuel or hazardous liquids during refueling or maintenance of construction equipment, or during operation of aboveground facilities. In general, equipment refueling and lubricating would take place in upland areas that are more than 100 feet from the edges of streams and river and their associated wetlands. Texas Eastern would follow the procedures specified in the SPCC Plan to address the handling of fuel or other materials in or within 100 feet of waterbodies. During clearing, where possible, and during grading, sediment barriers would be installed and maintained adjacent to waterbodies and within temporary construction workspaces, where needed, to minimize potential for sediment run-off.

3.5.2 Surface Water Quality

Texas Eastern would provide mitigation for impacts resulting from construction through adherence to FERC's *Plan and Procedures* and Texas Eastern's E&SCP (FERC 2013a, b). Texas Eastern chose the HDD



construction method to replace the segment of Line 12 beneath the Conemaugh River to avoid surficial impacts to its banks, riverbed, and riparian areas, which will avoid turbidity and sedimentation thereby protecting the surface water quality. Additionally, Texas Eastern would adhere to its SPCC Plan and HDD Contingency Plan during construction, as well as to applicable regulatory permit conditions.

3.5.3 Sensitive Water Resources

The Project does not cross any waterbody defined as a sensitive water resource.

3.6 HABITAT FOR THREATENED AND ENDANGERED SPECIES

No habitat for threatened and endangered species would be impacted by construction or operation of the Project.

4.0 COMPLIANCE WITH REGULATORY STANDARDS

Construction, operation, and maintenance of the Project would be conducted in accordance with Texas Eastern's specifications and applicable federal and state permit requirements. Texas Eastern is committed to complying with the resource protection measures set forth in the environmental conditions and requirements as specified within federal and state permits.

4.1 FEDERAL

Interstate natural gas transmission pipeline projects are subject to exclusive federal jurisdiction under the Natural Gas Act [U.S. Code Sections 717-717w]). The FERC is the regulatory agency with authorization to approve or deny construction and operation of proposed natural gas projects under the Natural Gas Act Sections 3 and 7. The FERC has responsibilities to assess the environmental impacts of proposed interstate natural gas transmission line projects pursuant to the National Environmental Policy Act (NEPA) under its regulatory standards outlined in 18 CFR 380. The Project is authorized under a Blanket Certificate pursuant to Section 7(c) of the Natural Gas Act.

However, other agencies maintain statutory jurisdiction over certain regulated activities associated with interstate natural gas transmission projects. Specifically, the USACE maintains jurisdiction over regulated activities proposed within waters of the U.S. under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code 403), and Section 404 of the CWA (33 U.S. Code 1344). The Project's compliance with the regulatory standards for issuance of an authorization under Section 404 of the CWA is discussed below.

4.1.1 Section 404 Clean Water Act

The Project would impact waters of the U.S. as defined under Section 404 of the CWA (33 U.S. Code 1344), including wetlands, and therefore requires authorization from the USACE.

4.1.2 Section 401 Water Quality Certification

The Project and proposed impacts are consistent with federal and state laws and regulations related to public health and welfare. Under Section 401 of the CWA and the water quality standards (33 CFR Part 1341), an applicant for a Section 404 permit to discharge dredged or fill material into waters of the U.S. must first satisfy the requirements for obtaining a certification from the appropriate state agency that the proposed activity would comply with the state's water quality standards and criteria. In PA, the authority for WQC is delegated to PADEP.

4.2 PENNSYLVANIA STATE

The Project is subject to exclusive federal jurisdiction under the Natural Gas Act, and that the operations, maintenance, and safety of Texas Eastern's facilities are also subject to exclusive federal jurisdiction under the re-codified Pipeline Safety Act (49 U.S. Code 60, 101 et seq.). The FERC encourages interstate pipelines to cooperate with the appropriate state and local entities whose interests and programs are related to the proposed Project.

For the purposes of review and coordination of PA State regulations, various state permits and approvals are related to this Project: Chapter 105 Water Obstruction and Encroachment Permit, Section 401 of the



CWA for a State WQC, and Chapter 102 Erosion and Sediment Control General Permit (ESCGP-3). Texas Eastern would submit applications for these required approvals in support of the Section 401 WQC.

5.0 REFERENCES

- Collins, H.H. Jr. 1981. The Complete Field Guide to North American Wildlife. Eastern Edition. Harper & Row Publishers, NY.
- Commonwealth of Pennsylvania. 2009. The Pennsylvania Code, Title 25: Environmental Protection. Chapter 93: Water Quality Standards, Section 93.9, Designated Water Uses and Water Quality Criteria.
- Cowardin, L.M., Charter, V., Golet, F.C., LaRoe, E.T., 1979, Classification of Wetlands And Deepwater Habitats of the United States, Report No. FWS/OBL-97/31, U. S. Department of the Interior, Fish and Wildlife Service, Washington District of Columbia.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Environmental Data Resources, Inc. (EDR). 2015. EDR DataMap Environmental Atlas Project Reports.
- Federal Energy Regulatory Commission (FERC). 2002. Office of Energy Projects. Guidance Manual for Environmental Report Preparation. August 2002.
<http://www.ferc.gov/industries/gas/enviro/erpman.pdf>. Accessed April 28, 2020.
- Federal Energy Regulatory Commission (FERC). 2013a. Office of Energy Projects. Wetland and Waterbody Construction and Mitigation Procedures. May 2013.
<http://www.ferc.gov/industries/gas/enviro/procedures.pdf>. Accessed April 28, 2020.
- Federal Energy Regulatory Commission (FERC). 2013b. Upland Erosion Control, Revegetation, and Maintenance Plan. May 2013 Version. www.ferc.gov/industries/gas/enviro/plan.pdf. Accessed on April 28, 2020.
- Fike, J. 1999. Terrestrial and Palustrine Plant Communities of Pennsylvania. Pennsylvania Natural Diversity Inventory. June 1999.
- Natural Resources Conservation Service (NRCS). 2020. The Watershed Boundary Dataset (WBD).
<http://datagateway.nrcs.usda.gov/GDGOrder.aspx>. Accessed May 5, 2020.
- National Park Service (NPS). 2020. Nationwide Rivers Inventory. Pennsylvania Segments.
<http://www.nps.gov/nrcr/programs/rtca/nri/states/pa.html>. Accessed May 20, 2020.
- Pennsylvania Department of Conservation and Natural Resources (DCNR). 2000. Physiographic Provinces of Pennsylvania. Available at:
http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_016202.pdf. Accessed on May 8, 2020.

- Pennsylvania Department of Conservation and Natural Resources (DCNR). 2020. Scenic Rivers. <http://www.dcnr.state.pa.us/brc/conservation/rivers/scenicrivers/index.htm>. Accessed May 20, 2020.
- Pennsylvania Department of Environmental Protection (PADEP). 2018. <https://www.dep.pa.gov/Business/Water/CleanWater/WaterQuality/IntegratedWatersReport/Pages/2018-Integrated-Water-Quality-Report.aspx>. Accessed May 9, 2020.
- Pennsylvania Department of Environmental Protection (PADEP). 2020. Environmental Facility Application Compliance Tracking System. Available at: <https://www.ahs.dep.pa.gov/eFACTSWeb/default.aspx>. Accessed on May 7, 2020.
- Pennsylvania Fish and Boat Commission (PFBC). 2020. Pennsylvania Fishes. <https://www.fishandboat.com/Fish/PennsylvaniaFishes/Pages/default.aspx>. Accessed on May 11, 2020.
- Trapp, H. and M.A. Horn. 1997. Groundwater Atlas of the United States, Delaware, Maryland, New Jersey, North Carolina, Pennsylvania, Virginia and West Virginia. United States Geological Survey, Reston, VA. Available at: <http://pubs.usgs.gov/ha/730l/report.pdf>. Accessed on February 1, 2015.
- US Army Corps of Engineers (USACE). 2011. Pennsylvania State Programmatic General Permit-4 (PASPGP-4). US Army Corps of Engineers. Accessed at: https://www.nab.usace.army.mil/Portals/63/docs/Regulatory/Permits/PASPGP-4_2-Year_Final_Monitoring_Report.pdf.
- US Army Corps of Engineers (USACE). 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain Piedmont (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- United States Environmental Protection Agency (EPA) 2020. Sole Source Aquifer Locations. Available at: <https://www.epa.gov/dwssa>. Accessed on May 11, 2020.
- United States Fish and Wildlife (USFWS). 2020. National Wildlife Refuge. Available at: <https://www.fws.gov/refuges/profiles/bystate.cfm>. Accessed on May 20, 2020.
- United States Geological Survey (USGS). 2015 National Hydrography Dataset. U.S. Geological Survey, Washington D.C. Accessed at <http://nhd.usgs.gov/data.html>.

Appendix A
Alignment Sheet and Erosion and Sediment Control
Plans

RIGHT-OF-WAY

TRACT NUMBERS
OWNERSHIP/AGENCY

SURVEY DATA

SURVEY COMPANY:
FIELD BOOK:
PAGES:

CLASS LOCATION

PIPE MATERIAL

ALIGNMENT LEGEND

PROPOSED IN-SITU REPLACEMENT
HDD DRILL
CONVENTIONAL LAY
CAPPED & GROUTED PIPELINE
TEXAS EASTERN PIPELINE
PIPELINE MILEPOST
EXISTING EASEMENT
CONTOURS
PROPERTY LINE
COUNTY LINE
CENTERLINE
FENCE
FOREIGN PIPELINE
OVERHEAD WIRES
ADDITIONAL PERMANENT EASEMENT
CONSTRUCTION WORKSPACE WITHIN EXISTING EASEMENT
TEMPORARY WORKSPACE
DELINEATED WETLAND BOUNDARY
PROPOSED PERMANENT ACCESS ROAD
EXISTING ACCESS ROAD
DRILL TARGET
VALVE

DATE OF AERIAL PHOTOGRAPHY: 2015

ENVIRONMENTAL DATA

FOR ENVIRONMENTALLY SENSITIVE AREAS (ESA), CONSULT WITH ENVIRONMENTAL INSPECTOR PRIOR TO CONSTRUCTION ACTIVITIES. FOR REFERENCE ENVIRONMENTAL SENSITIVE AREA DEFINITION.

E & S TYPICALS

E&S TYPICALS WILL BE USED AS A PLAN AND WILL FURTHER INPUT FROM ENVIRONMENTAL INSPECTORS, FOR REFERENCED E&S TYPICAL.

PROFILE

THE LOCATION OF TRENCH BREAKERS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.

SLOPE BREAKER
TRENCH BREAKER

PROJECT DATA

NOM. DIA. 24"
MOP 1050 PSIG
DESIGN SPEC. DOT 192 / ASME B31.8
PIPE SPEC. API-5L
MIN. TEST PRESSURE 1.5X MOP

LAND USE CLASSIFICATION

AG AGRICULTURE PA PASTURE ROW EXISTING RIGHT-OF-WAY
F/W FOREST/WOODLAND R RESIDENTIAL OW OPEN WATER

PERMANENT SLOPE BREAKER & TRENCH BREAKER SPACING

% SLOPE SLOPE BREAKER SPACING (FT) % SLOPE TRENCH BREAKER SPACING (FT)
5-15% 300 FT 5-15% 300 FT
15-30% 200 FT 15-30% 200 FT
>30% 100 FT >30% 100 FT

LAND USE:
% SLOPE:

ISSUED FOR 05/28/20 CONSTRUCTION

DELMD-1200 PIPING PLAN WEST SIDE
DELMD-1211 PIPING SECTIONS
DELMD-1220 PIPING PLAN MAINLINE VALVE
DELMD-1211 PROPOSED SITE PLAN EAST SIDE

DWG. NO. DESCRIPTION

REFERENCE DRAWINGS

REVISIONS

REVISIONS

ITEM NO. MATERIALS QTY

1 PIPE, 24" X 0.500, X-60, 2669'
2 3R ELL, 10 DEG. SEGMENTABLE 1
3 3R ELL, 12 DEG. SEGMENTABLE 1
4 3R ELL, 39 DEG. SEGMENTABLE 1
5 3R ELL, 90 DEG. 1
A FBE COATING 810'
B FBE W/ ARO COATING 1739'
C FBE W/ ARO + SP-2888 120'

audubon Field Solutions
10205 WESTHEIMER ROAD
SUITE 100
HOUSTON, TX 77042
PHONE: (281) 669-0590

ENGINEERING APPROVALS

DRAWN BY BID CONSTRUCTION

JBS 4/14/20

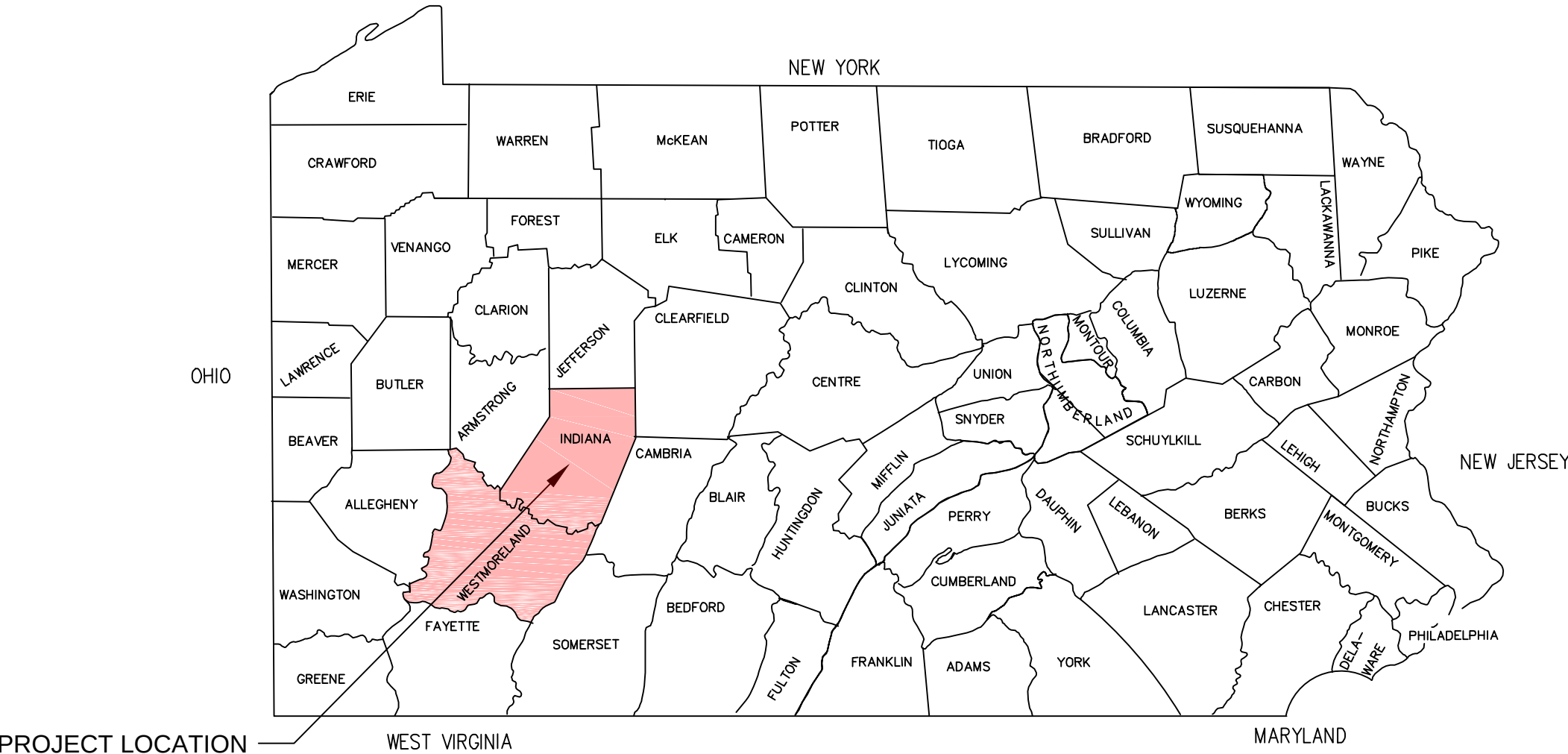
CONEMAUGH RIVER CROSSING PROJECT
DELMONT TO ARMAGH
PROPOSED 24-INCH LINE 12 HDD INSTALLATION
CONSTRUCTION ALIGNMENT
LOC. WESTMORELAND & INDIANA COUNTY, PA

YEAR: 2020 W.B.S. SCALE: 1" = 100' DWG.DELM-DW-P1100 REV. 0

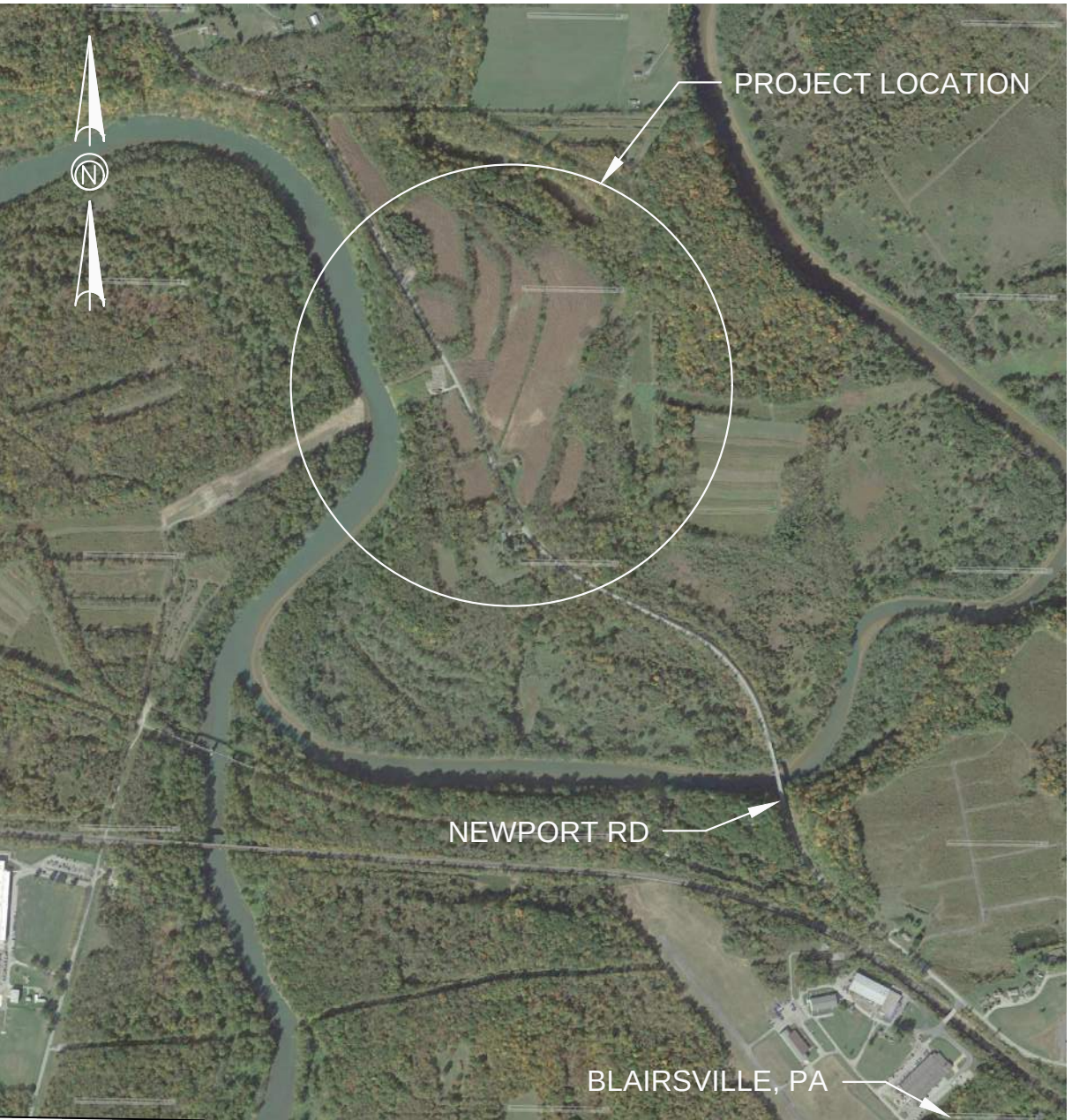
TEXAS EASTERN TRANSMISSION, LP
5400 WESTHEIMER CT. HOUSTON, TX 77056-5310 713 / 627-5400

CONEMAUGH RIVER CROSSING PROJECT
DELMONT TO ARMAGH
PROPOSED 24-INCH LINE 12 HDD INSTALLATION
DERRY TOWNSHIP, WESTMORELAND COUNTY, PENNSYLVANIA
BLACKLICK TOWNSHIP, INDIANA COUNTY, PENNSYLVANIA
MAY 2020
EROSION AND SEDIMENT CONTROL PLAN

EROSION AND SEDIMENT CONTROL PLAN		
SHEET	DESCRIPTION	NO.
DELM-C-8100	COVER SHEET	1
DELM-P-8100	GENERAL PERMIT NOTES	2
DELM-P-8101	CONSTRUCTION SEQUENCE/SEEDING MIX	3
DELM-P-8102	HDD PROCEDURE NOTES	4
DELM-P-8103	HDD PROCEDURE NOTES	5
DELM-P-8200	EROSION AND SEDIMENT CONTROL PLAN	6
DELM-P-8201	EROSION AND SEDIMENT CONTROL PLAN	7
DELM-P-8202	EROSION AND SEDIMENT CONTROL PLAN	8
SHEET 1 OF 3	EROSION AND SEDIMENT CONTROL FIGURES	9
SHEET 2 OF 3	EROSION AND SEDIMENT CONTROL FIGURES	10
SHEET 3 OF 3	EROSION AND SEDIMENT CONTROL FIGURES	11



ENGINEER'S CERTIFICATION
I DO HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE EROSION AND SEDIMENT CONTROL AND POST CONSTRUCTION STORMWATER MANAGEMENT PLAN 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 SUBMISSION OF FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.



NOT ALL UTILITIES ARE SHOWN ON THESE PLANS.
THE LOCATION OF ALL UTILITIES (ABOVE OR BELOW GROUND) SHOWN ON THESE DRAWINGS ARE APPROXIMATE & WERE OBTAINED FROM USGS TOPO MAPS AND/OR UTILITY OWNERS. AUDUBON DOES NOT GUARANTEE THAT LOCATION SHOWN ON THE DRAWINGS ARE CORRECT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE LOCATIONS OF EXISTING UTILITIES (ABOVE OR BELOW GROUND) & TO NOTIFY THE RESPECTIVE UTILITY OWNERS BEFORE BEGINNING CONSTRUCTION.

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
Pennsylvania One Call System Inc.
1-800-242-1776

DESIGN ONE CALL SERIAL NO.: 20151982217

APPLICANT:



Texas Eastern Transmission, L.P.
5400 Westheimer Ct. Houston, TX 77056-5310 713 / 627-5400

PREPARED BY:



1. THIS PLAN SET CONTAINS ALL INFORMATION FOR THE EROSION AND SEDIMENT CONTROL PLAN (&ECP). THIS IS A PERMIT DOCUMENT ONLY. ADDITIONAL PLANS AND DOCUMENTATION ARE REQUIRED FOR CONSTRUCTION OF THE PROPOSED DEVELOPMENT.
2. FULL SIZE SHEETS OF THIS PLAN SET MAY BE PRINTED OUT ON 22-INCHx34-INCH SHEETS. ALL SCALES PRINTED OUT ON 11-INCHx17-INCH SHEETS ARE SCALED BY 1/2 (E.G., 1-INCH=100 IS EQUIVALENT TO 1-INCH=200 FEET WHEN THESE PLAN SETS ARE PRINTED ON 11-INCHx17-INCH).
3. IN THE EVENT ANY ADVERSE GEOTECHNICAL CONDITIONS ARE OBSERVED, THE ENGINEER SHOULD BE CONTACTED IMMEDIATELY. SUCH CONDITIONS MAY INCLUDE, BUT ARE NOT LIMITED TO, EXCESSIVE SEEPAGE, SLOUGHING OF MATERIAL, EXCESSIVELY WET MATERIAL, EXCESSIVE SETTLEMENT OF COMPACTED LAYERS, EXCESSIVE SOIL CRACKING, AND/OR MOVEMENT OF COMPACTED EARTHEN MATERIAL.

1. SOILS INFORMATION FROM UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY (CURRENT).
2. HORIZONTAL DATUM IS NAD83. VERTICAL DATUM IS NAVD1988.
3. ALL NORTHING AND EASTING COORDINATES SHOWN IN PENNSYLVANIA STATE PLANE NORTH NAD83.

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE:

1. AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OWNER AND/OR OPERATOR SHALL NOTIFY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (PADEP) BY EITHER TELEPHONE OR CERTIFIED MAIL OF THE INTENT TO COMMENCE EARTH DISTURBANCE ACTIVITIES. ATTENDANCE AT A PRE-CONSTRUCTION CONFERENCE IS REQUIRED UPON REQUEST OF THE PADEP.
2. AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
3. INSTALL ROCK CONSTRUCTION ENTRANCE.
4. INSTALL COMPOST FILTER SOCK DOWNSLOPE OF ANY PROPOSED DISTURBED/EXCAVATED AREA AND STOCKPILES. INSTALL ANY UPSLOPE DIVERSION DITCHES, COLLECTION CHANNELS, DIVERSION BERMS, SEDIMENT TRAPS AND ASSOCIATED RIPRAP APRONS.
5. PERFORM CLEARING AND GRUBBING TO THOSE AREAS DESCRIBED IN EACH STAGE OF WORK. STOCKPILE TOPSOIL AS SHOWN AND INSTALL COMPOST FILTER SOCKS DOWNSLOPE OF STOCKPILES.
6. PERFORM GRADING ACTIVITIES, INCLUDING THE POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSM) INFILTRATION BERM, DETAILED BY PROPOSED GRADING NOTES, AND DETAILS SHOWN ON THE PLAN DRAWINGS. AS PER PROJECT SPECIFICATIONS, ADDITIONAL TEMPORARY PLACEMENT OF COMPOST FILTER SOCK MAY BE NECESSARY AT THE CONTRACTOR'S DISCRETION SHOULD ACCELERATED EROSION BE ENCOUNTERED DURING GRADING ACTIVITIES.
7. CONSTRUCT FACILITIES ACCORDING TO SPECIFICATIONS WITHIN THESE PLAN SHEETS INCLUDING ALL STABILIZATION MEASURES.
8. PLACE TOPSOIL IN ALL AREAS TO BE VEGETATED.
9. INSTALL ALL FINAL GRAVEL AS INDICATED ON THE PLAN FOR PROPOSED ACCESS ROAD AND VALVE SITE.
10. APPLY SEED AND MULCH TO DISTURBED AREAS AS SPECIFIED AND IN ACCORDANCE WITH THIS PLAN.
11. ANY TEMPORARY MEASURES (SUCH AS THE ROCK CONSTRUCTION ENTRANCE, COMPOST FILTER SOCK, COLLECTION CHANNEL, RIPRAP APRONS, ETC.) INSTALLED BY CONTRACTOR DURING GRADING, SHALL BE REMOVED IN PLACE UNTIL FINAL STABILIZATION HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
12. ONCE ACTIVITIES ARE COMPLETED AND ALL CONTRIBUTING AREAS ARE STABILIZED, MAINTAIN PCSM BEST MANAGEMENT PRACTICE (BMP'S) DETAILED BY THE PCSM NOTES, AND DETAILS SHOWN ON THE E&SCP AND ALSO INCLUDED IN THE PCSM PLAN.

GENERALLY DEFINED AS AREAS NORTH OF THE NORTHERN BORDERS OF ARKANSAS AND TENNESSEE.

LIME	4.0 TONS/ACRE
FERTILIZER	1000 LBS./ACRE (10-20-20)
MULCH (WHEAT STRAW)	3.0 TONS/ACRE

PASTURE MIX	20 LBS./ACRE PLS
(FOR USE ONLY IN DISTURBED PASTURE AREAS WITH LANDOWNER'S PERMISSION.)	
KENTUCKY BLUEGRASS	31%
MEDIUM RED CLOVER	26%
NORCEN TREFOL	17%
POLY PERENNIAL RYE	26%

(FOR THE ESTABLISHMENT OF TEMPORARY OR PERMANENT VEGETATION.)
 SPRING: MARCH 15 - MAY 30
 FALL: AUGUST 1 - OCTOBER 15

IF RESTORATION DOES NOT OCCUR PRIOR TO OCTOBER 15, SEED THE CONSTRUCTION ROW WITH 1.5 BUSHEL PER ACRE OF WINTER RYE OR SIMILAR VARIETY OF RYE AS REQUESTED BY THE LANDOWNER. MULCH THE CONSTRUCTION ROW AT 3.0 TONS PER ACRE WITH WHEAT STRAW, INCLUDING AREAS ADJACENT TO STREAMS AND WETLAND CROSSINGS. SEED SEGREGATED TOPSOIL PILES WITH WINTER RYE AND MULCH AT A RATE OF 3.0 TONS PER ACRE.

DO NOT USE FERTILIZER, LIME, OR MULCH WITHIN WETLANDS UNLESS REQUIRED IN WRITING BY THE APPROPRIATE FEDERAL OR STATE AGENCY (AS IDENTIFIED IN THE CLEARANCE PACKAGE/PERMIT BOOK). MULCH CONSISTS OF WEED-FREE STRAW, WOOD FIBER HYDROMULCH OR SOME FUNCTIONAL EQUIVALENT AS APPROVED BY THE EI AND CHIEF INSPECTOR. WHEN USED, APPLY MULCH (WHEAT STRAW) AT A RATE OF 3.0 TONS/ACRE.

ANNUAL RYEGRASS 40 LBS./ACRE PLS

COMMONWEALTH OF
REGISTERED
PROFESSIONAL
BRANDON MICHAEL WALKER
ENGINEER
PE077056
PENNSYLVANIA

CONSTRUCTION NOTES:

- PROPOSED PIPE TO BE INSTALLED.
- CROSSING IS TO BE HORIZONTALLY DIRECTIONALLY DRILLED.
- ROAD SURFACE, STREAM, OR WETLAND NOT TO BE DISTURBED.

PLAN VIEW (NOT TO SCALE)

The plan view shows the layout of the drilling operation. Key components include:

- DRILL RIG**: Located at the top left.
- ENTRY PIT (TYP.)**: Located near the drill rig.
- SAND BAG AS NECESSARY (SEE NOTE 2)**: Located near the entry pit.
- DRILLING FLUID TANK**: Located near the entry pit.
- PUMPED WATER FILTER BAG (PER PA E&S STANDARDS)**: Located near the drilling fluid tank.
- SOIL STOCKPILE**: Located near the drilling fluid tank.
- SURFACE FLOW, SWALE OR ROADSIDE DITCH**: Located near the soil stockpile.
- DRILLING PATH CENTERLINE**: Indicated by a dashed line.
- ORANGE CONSTRUCTION SCALE SAFETY FENCE**: Located along the perimeter of the work area.
- ROAD, STREAM OR WETLAND**: Indicated by a dashed line.
- CONTAINMENT BERM**: Located near the exit pit.
- RECEIVING PIT (TYP.)**: Located near the containment berm.
- MUD CLEANING AREA**: Located near the receiving pit.
- SOIL STOCKPILE**: Located near the mud cleaning area.
- EXIT HOLE**: Located near the receiving pit.
- AREA NOT TO BE DISTURBED**: Located near the exit hole.
- EDGE OF FEATURE**: Located near the exit hole.
- EDGE OF DITCH (IF PRESENT)**: Located near the exit hole.
- EDGE OF ROAD, STREAM OR WETLAND**: Located near the exit hole.
- EDGE OF FEATURE**: Located near the exit hole.

SECTION (N.T.S.)

The section view shows the cross-section of the drilling operation. Key components include:

- DRILL RIG**: Located at the top left.
- ENTRY PIT**: Located near the drill rig.
- EXISTING GRADE**: Indicated by a dashed line.
- EDGE OF FEATURE**: Located near the entry pit.
- EDGE OF DITCH (IF PRESENT)**: Located near the entry pit.
- EDGE OF ROAD, STREAM OR WETLAND**: Located near the entry pit.
- EDGE OF FEATURE**: Located near the entry pit.
- CONTAINMENT BERM (TYP.)**: Located near the exit pit.
- EXIT HOLE**: Located near the containment berm.
- RECEIVING PIT**: Located near the exit hole.
- DRILLED PATH CENTERLINE**: Indicated by a dashed line.

1. TEMPORARY PIPE CULVERT 12" MINIMUM DIAMETER NOT REQUIRED IF SWALE/DITCH IS RESTORED THE SAME DAY THAT IT IS DISTURBED OR IF NO SWALE/DITCH IS PRESENT.
2. RUNOFF FROM ROADWAY DITCHES OR SURFACE FEATURES MUST BE DIVERTED AROUND ENTRY EXIT PITS (SAND BAG, DIKE, ETC.) OR OVER PITS (PIPE CULVERT WITH SAND BAGS TO CHANNELIZE FLOW).
3. INSTALL ROCK CONSTRUCTION ENTRANCES PER THE PLANS.
4. THE CONTRACTOR WILL AVOID PLACING BORE PITS WITHIN WETLANDS UNLESS ALL OTHER OPTIONS ARE EXHAUSTED. IF NO OTHER OPTION IS AVAILABLE, THE BORE PITS WILL BE PERMITTED AS DISTURBANCE AND WETLAND IMPACTS UNDER CHAPTER 101 AND 106. ALL STOCKPILES, MUD CLEANING AREAS, AND OTHER WORK NOT REQUIRED WITHIN THE BORE PIT VICINITY WILL BE LOCATED AT LEAST 10 FEET AWAY FROM ALL WETLANDS.

REMOVE ALL DRILLING MUD AND AFFECTED SOILS AND WATER WITHIN THE CONTAINMENT AREA

CONTAINMENT AREA

DRILL LINE

IMPERVIOUS DAM STRUCTURE (CLAY OR BENTONITE BAGS) TYP.

ENERGY DISSIPATER (TYP.)

SECONDARY CONTAINMENT STRUCTURE: HAY BALES, SILT CURTAINE, ETC. AS NEEDED (REPLACE WITH COMPOST FILTER SOCK IN SPECIAL PROTECTION OR SILTATION IMPAIRED WATERSHED)

WATERBODY DETAIL
NTS

STREAM BANK

INTAKE

PUMP

DISCHARGE

IMPERVIOUS LINER

CLAY OR BENTONITE BAGS

IMPERVIOUS DAM STRUCTURE
NTS

IMPERVIOUS DAM STRUCTURE (CLAY OR BENTONITE BAGS)

CONTAINMENT AREA

DRILL LINE

SECONDARY CONTAINMENT STRUCTURE: HAY BALES, SILT CURTAINE, ETC. AS NEEDED (REPLACE WITH COMPOST FILTER SOCK IN SPECIAL PROTECTION OR SILTATION IMPAIRED WATERSHED)

WETLAND OR UPLAND DETAIL
NTS

2

CONTINGENCY PLAN DETAILS



05/28/2020

THE CONSTRUCTION OF THE PROJECT WILL INVOLVE THE USE OF THE HORIZONTAL DIRECTIONAL DRILLING ("HDD") INSTALLATION TECHNIQUE FOR AVOIDING ENVIRONMENTALLY SENSITIVE RESOURCES OR OBSTRUCTIONS THAT OCCUR ALONG THE PROJECT PIPELINE ROUTE. THIS BEST DRILLING PRACTICE PLAN ("PLAN") HAS BEEN DEVELOPED TO MINIMIZE OR QUICKLY RESOLVE POSSIBLE INADVERTENT EFFECTS BY IDENTIFYING APPROPRIATE CORRECTIVE ACTIONS FOR ANY POTENTIAL SENSITIVITIES THAT MAY BE ENCOUNTERED DURING HDD OPERATIONS. THE PURPOSE OF THIS DOCUMENT IS TO PROVIDE A DESCRIPTION OF THE PROPERTIES, THE HDD WORKING PROCEDURES, AND MONITORING FOR INADVERTENT RETURNS BRING HDD ACTIVITIES ON THE PROJECT. THE FOLLOWING SECTIONS OF THIS PLAN PROVIDE THE PROCESSES TO BE IMPLEMENTED IN THE CASE OF INADVERTENT RETURNS OR RETURNS OF DRILLING FLUID DURING HDD ACTIVITIES.

THE HMD METHOD REQUIRES ESTABLISHING STAGING AREAS AT BOTH ENDS OF THE PROPOSED CROSSING, TYPICALLY KNOWN AS THE ENTRY AND EXIT POINTS, OR WORKPACES. THE PROCESS COMMENCES WITH THE DRILLING OF A PILOT HOLE ALONG A PREDETERMINED PATH BENEATH THE OBSTRUCTION, WETLAND OR WATERBODY. ONCE THE PILOT HOLE HAS BEEN COMPLETED, THE DRILLED HOLE IS ENLARGED WITH ONE OR MORE PASSES OF A REAMER UNTIL THE DIAMETER OF THE HOLE IS ADEQUATE TO COMPLETE THE PULL-BACK (INSTALLATION) OF THE PIPELINE. ONCE THE REAMING PASS(S) ARE COMPLETED, THE PREFABRICATED PIPE SEGMENTS ARE SUCCESSFULLY PULLED BACK INTO PLACE TO COMPLETE THE INSTALLATION. ADDITIONAL WELDING TO JOIN THE PREFABRICATED SEGMENTS MAY BE REQUIRED DURING THE PULLBACK PROCESS. WHILE THE HMD METHOD IS A COMMONLY USED, PROVEN TECHNOLOGY, THERE IS THE POTENTIAL FOR UNINTENDED EFFECTS THAT COULD OCCUR AS A RESULT OF THE DRILLING.

THE HDD PROCESS USES ENGINEERED DRILLING FLUIDS TO FACILITATE MANY OF THE HDD OPERATIONS. DRILLING FLUID IS A SLURRY COMPOSED PRIMARILY OF WATER AND BENTONITE CLAY (TYPICALLY 95 PERCENT WATER). FACITONITE (SODIUM MONMORILLONITE) IS NATURALLY OCCURRING CLAY, USUALLY MINED IN WYOMING, WHICH IS EXTREMELY HYDROPHILIC AND CAN ABSORB UP TO TEN TIMES ITS WEIGHT IN WATER. BENTONITE IS NOT CONSIDERED A HAZARDOUS MATERIAL AS DEFINED BY THE ENVIRONMENTAL PROTECTION AGENCY. IT IS NON-TOXIC TO THE AQUATIC ENVIRONMENT. THE COMPOSITION OF THE DRILLING FLUIDS AND ITS ENGINEERING PROPERTIES ARE TESTED TO ENSURE THEIR SUITABILITY FOR THE GIVEN SUBSURFACE CONDITIONS ENCOUNTERED ALONG THE ALIGNMENT AND AT EACH INDIVIDUAL HDD LOCATION.

- STABILIZE THE HOLE AGAINST COLLAPSE;
- LUBRICATE, COOL, AND CLEAN THE CUTTERS;
- TRANSPORT CUTTINGS BY SUSPENSION AND FLOW TO ENTRY AND EXIT POINTS; AND REDUCE SOIL FRICTION AND REQUIRED PULL LOADS DURING PILOT HOLE, REAMING, AND CARRIER PIPE INSTALLATION.

DEPENDING ON SUBSURFACE CONDITIONS ENCOUNTERED, CERTAIN LOSS CIRCULATION MATERIALS (LCMS) AND SPECIAL POLYMERS MAY ALSO BE INTRODUCED IN THE DRILLING FLUID MIXTURE. LOSS CIRCULATION MATERIALS MAY BE USED DURING INADVERTENT RETURN EVENTS AND/OR IN CERTAIN CASES WHEN DRILLING FLUID CIRCULATION SEEMS TO BE DIMINISHING. IN THE EVENT THAT EXISTING FLOW PATHS (FAULTS, FRACTURES, VOIDS, ETC.) INTERSECT THE HDD PATH, LCMS MAY BE USED IN AN ATTEMPT TO SEAL AROUND THE BOREHOLE AND PREVENT DRILLING FLUID FROM ESCAPING INTO THE FORMATION AND ALLOW FOR THE REESTABLISHMENT OF DRILLING FLUID RETURNS TO THE ENTRY AND/OR EXIT PITS. MANY TYPES OF LCMS ARE AVAILABLE FOR USE DURING HDD OPERATIONS THAT ARE INERT AND ENVIRONMENTALLY BENIGN.

ENBRIDGE IS IN THE EARLY PHASES OF SELECTING PIPELINE AND HDD CONSTRUCTION CONTRACTORS. THEREFORE, AT THIS TIME, ENBRIDGE IS UNABLE TO IDENTIFY THE SPECIFIC LOMS AND POLYMERS THAT MAY BE USED ON THE PROJECT. FOR EXAMPLE, DRILLING FLUID ADDITIVES THAT MAY BE USED IN CLAY WILL NOT LIKELY BE BENEFICIAL IN ROCK. CONSIDERATION IS ALSO GIVEN TO THE VARYING GEOLOGICAL FORMATION THE PROJECT TRAVERSE.

AFTER HHD CONTRACTOR SELECTION IS COMPLETED AND PRIOR TO THE START OF CONSTRUCTION, THE HHD CONTRACTORS WILL BE REQUIRED TO SUBMIT A LIST OF DRILLING FLUID ADDITIVES (E.G., POLYMERS, LCM, ETC.) PROPOSED FOR USE ON THE PROJECT TO ENBRIDGE FOR REVIEW AND APPROVAL. ENBRIDGE WILL REVIEW THE LIST AND PROVIDE COMMENTS TO THE HHD CONTRACTORS. ENBRIDGE WILL NOT BE REQUIRED TO APPROVE THE USE OF ANY ADDITIVES. ENBRIDGE WILL PROVIDE THAT LIST TO REGULATORY AUTHORITIES. STAFF, ENBRIDGE WILL INITIALLY DETERMINE THE PRODUCTS TO BE AUTHORIZED FOR PROJECT USE BASED ON COMPLIANCE WITH NSF 60 STANDARDS. NSF 60 IS A STANDARD THAT ESTABLISHES HEALTH AND SAFETY CRITERIA FOR THE CHEMICAL TREATMENT OF DRINKING WATER AND CONSEQUENTLY, DRINKING WATER WELL DEVELOPMENT ("NSF/ANSI STANDARD 60"). IN ADDITION TO NSF 60 CRITERIA, ANY OTHER APPLICABLE REGULATORY CRITERIA WILL BE CONSIDERED. AFTER THE REVIEW PROCESS HAS BEEN COMPLETED, ENBRIDGE WILL SUBMIT TO REGULATORY AUTHORITIES A LIST OF SPECIFIC ADDITIVES PLANNED TO BE USED ON THE PROJECT.

- **BOREHOLE STABILIZERS/VISCOISIFIERS:** POLYMERS USED TO INCREASE VISCOSITY AND GEL STRENGTH OF WATER/BENTONITE DRILLING FLUIDS.
- **LOST CIRCULATION MATERIALS:** CAN BE POLYMERS BUT SOMETIMES OTHER BIO-DEGRADABLE MATERIALS ARE USED AS LCMS (I.E. WALNUT SHELLS, PAPER ETC.)

MOST DRILLING FLUIDS, DRILLING FLUID ADDITIVES AND POLYMERS USED IN THE HDD INDUSTRY ARE NSF 60 COMPLIANT, AS THESE PRODUCTS ARE USED THERE WILL BE NO EFFECTS ON WATER QUALITY.

PRIOR TO STARTING ANY HDD DRILLING THE HI AND EI WILL VERIFY THAT ALL ENVIRONMENTAL CONTROLS ARE IN PLACE. THERE WILL BE THE POTENTIAL FOR INADVERTENT RETURNS OR LOSS OF DRILLING FLUIDS FROM THE BORED HOLE. HOWEVER, DRILLING FLUIDS THAT ARE RETURNED WILL LIKELY CONTAIN A LOWER CONCENTRATION OF BENTONITE WHEN THEY SURFACE BECAUSE THAT MIXTURE MAY BE FILTERED AND SOMEWHAT DILUTED AS IT PASSES THROUGH EXISTING SEDIMENTS OF VARIOUS TYPES.

INADVERTENT RETURNS MAY OCCUR AS A RESULT OF ROCK FRACTURES, LOW DENSITY/LOW STRENGTH SOILS, AND UNCONSOLIDATED GEOLOGY, WHICH WERE NOT DETECTED BY THE HI AND EI PRIOR TO DRILLING. INADVERTENT RETURNS MAY ALSO OCCUR AS SEEPAGE (POOLING OF DRILLING MUD AT THE SURFACE) OR A LOSS OF CIRCULATION OF THE DRILLING FLUID, WHEN THE OPERATOR OBSERVES A LOSS OF DRILLING FLUID RETURNING. IT IS AN INDICATOR THAT SEEPAGE MAY BE OCCURRING, PRIOR TO THE START OF DRILLING OPERATIONS, SITE-SPECIFIC HDD PROCEDURES WILL BE REVIEWED WITH THE HDD CONTRACTOR. AT A MINIMUM, THE HDD PROCEDURES WILL ADDRESS THE FOLLOWING:

INADVERTENT RETURNS MAY OCCUR WHEN THE PRESSURE OF THE DRILLING FLUID IN THE BORED HOLE EXCEEDS THE LIMITING STRENGTH OF THE SOILS. EACH PILOT HOLE WILL INCORPORATE "PRESSURE WHILE DRILLING" (PWD) INSTRUMENTATION. THE PWD TOOL MEASURES THE FLUID PRESSURE NEAR THE DRILL BIT. PRESSURES MAY INCREASE WHEN THERE IS AN OBSTRUCTION TO ANNULAR FLOW SOMEWHERE BETWEEN THE BIT AND THE ENTRY AT GROUND SURFACE. IF PRESSURES RISE OR SPIKE, THE DRILLER CAN INITIATE REMEDIAL ACTIONS (SEE BELOW) PRIOR TO SEEING ANY INADVERTENT RETURN AT THE SURFACE.

ONCE IT IS INDICATED TO THE DRILLER THAT DRILLING FLUID CIRCULATION IS DISSIPATING OR THAT A RETURN HAS OCCURRED, THE DRILLER HAS THE FOLLOWING OPTIONS (OR ANY COMBINATION OF THESE OPTIONS):

- DECREASE PUMP PRESSURE;
- DECREASE PENETRATION RATE;
- RETRACT THE DRILL STRING A DISTANCE TO RESTORE CIRCULATION ("SWAB" THE HOLE);
- INTRODUCE ADDITIONAL DRILLING FLUID FLOW ALONG THE HOLE USING "WEEPER" SUBS; AND
- INTRODUCE LOST CIRCULATION ADDITIVES TO THE DRILLED HOLE.

IF INADVERTENT RETURNS ARE OBSERVED ON THE GROUND SURFACE ALONG PORTIONS IN THE ALIGNMENT THAT ARE ACCESSIBLE, CONTAINMENT AND RECOVERY OPERATIONS WILL BE COMPLETED IN ACCORDANCE WITH THE PROCEDURES DISCUSSED IN THIS PLAN. ONCE THE INADVERTENT RETURN IS CONTAINED, DRILLING OPERATION WILL RESUME.

IF INADVERTENT RETURNS ARE OBSERVED ON THE GROUND SURFACE ALONG PORTIONS OF THE ALIGNMENT THAT ARE INACCESSIBLE; THE FOLLOWING PROCEDURES WILL BE FOLLOWED:

- CONTRACTOR WILL ENSURE ALL REASONABLE MEASURES WITHIN THE LIMITATIONS OF CURRENT TECHNOLOGY HAVE BEEN TAKEN TO RE-ESTABLISH CIRCULATION; AND
- CONTINUE DRILLING UTILIZING A MINIMAL AMOUNT OF DRILLING FLUID AS REQUIRED TO PENETRATE THE FORMATION OR TO MAINTAIN A SUCCESSFUL CARRIER PIPE PULL BACK.

THE ACTIONS IN THIS PLAN ARE TO BE IMPLEMENTED BY THE FOLLOWING PERSONNEL:

ENBRIDGE WILL DESIGNATE A HDD INSPECTOR (HI) FOR THE PROJECT. THE HI WILL HAVE OVERALL AUTHORITY FOR CONSTRUCTION ACTIVITIES THAT OCCUR ON THEIR DESIGNATED HDD OF THE PROJECT. THE HDD INSPECTORS WILL REPORT TO A CHIEF INSPECTOR (CI) THAT IS IN CHARGE OF THE OVERALL PROJECT. THE HI HAS THE TOTAL RESPONSIBILITY TO VERIFY THAT ALL HDD PROCEDURES ARE FOLLOWED. IF ANY HDD PROCEDURE IS NOT BEING FOLLOWED THE HDD WILL BE STOPPED AND THE CI WILL BE NOTIFIED. THE PROCEDURE WILL BE REVIEWED AGAIN WITH THE HDD CONTRACTORS MANAGEMENT TEAM TO MAKE SURE THAT ALL PROCEDURES ARE BEING FOLLOWED.

ONE ENVIRONMENTAL INSPECTOR (EI) WILL BE DESIGNATED BY ENBRIDGE TO EACH SPREAD. THE EI WILL HAVE PEER STATUS WITH ALL OTHER CRAFT INSPECTORS AND WILL REPORT DIRECTLY TO THE CI WHO HAS OVERALL AUTHORITY. THE EI, ALONG WITH ALL OTHER INSPECTORS AND INSPECTION PERSONNEL, WILL HAVE THE AUTHORITY TO STOP ACTIVITIES THAT VIOLATE THE ENVIRONMENTAL CONDITIONS OF THE REGULATORY AUTHORITIES CERTIFICATE (IF APPLICABLE), OTHER FEDERAL AND STATE PERMITS, OR LANDOWNER REQUIREMENTS AND TO ORDER CORRECTIVE ACTION.

THE HDD SUPERINTENDENT IS THE SENIOR ON-SITE REPRESENTATIVE OF THE HDD CONTRACTOR. THE HDD SUPERINTENDENT HAS OVERALL RESPONSIBILITY FOR IMPLEMENTING THIS PLAN ON BEHALF OF THE HDD CONTRACTOR. THE HDD SUPERINTENDENT WILL BE FAMILIAR WITH THE ASPECTS OF THE DRILLING ACTIVITY, THE CONTENTS OF THE PLAN AND THE CONDITIONS OF APPROVAL UNDER WHICH THE ACTIVITY IS PERMITTED TO TAKE PLACE. THE HDD SUPERINTENDENT WILL MAKE AVAILABLE A COPY OF THIS PLAN AND THE CONDITIONS OF APPROVAL UNDER WHICH THE ACTIVITY IS PERMITTED TO TAKE PLACE. THE HDD SUPERINTENDENT WILL MAKE AVAILABLE A COPY OF THIS PLAN TO THE APPROPRIATE CONSTRUCTION PERSONNEL. THE HDD SUPERINTENDENT WILL ENSURE THAT WORKERS ARE PROPERLY TRAINED AND FAMILIAR WITH THE NECESSARY PROCEDURES FOR RESPONSE TO AN INADVERTENT RETURN.

THE HDD OPERATOR IS THE HDD CONTRACTOR'S DRILLER OPERATING THE DRILLING RIG AND MUD PUMPS. THE HDD OPERATOR IS RESPONSIBLE FOR MONITORING CIRCULATION BACK TO THE ENTRY AND EXIT LOCATIONS. IN THE EVENT OF LOSS OF CIRCULATION, THE HDD OPERATOR MUST COMMUNICATE THE EVENT TO THE HDD SUPERINTENDENT AND HDD CONTRACTOR FIELD CREWS. THE HDD OPERATOR IS RESPONSIBLE FOR STOPPAGE OR CHANGES TO THE DRILLING PROGRAM IN THE EVENT OF OBSERVED INADVERTENT RETURNS.

DURING HDD INSTALLATION, FIELD CREWS WILL BE RESPONSIBLE FOR MONITORING THE HDD ALIGNMENT ALONG WITH ENBRIDGE'S FIELD REPRESENTATIVE(S). FIELD CREWS, IN COORDINATION WITH THE EI, ARE RESPONSIBLE FOR TIMELY NOTIFICATIONS AND RESPONSES TO OBSERVED RETURNS TO THE CI AND APPROPRIATE AGENCIES. IN ACCORDANCE WITH THIS PLAN, THE EI AND CI ULTIMATELY MUST APPROVE THE ACTION PLAN FOR MITIGATING THE RETURN. THE HDD CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING THE HDD PATH. THEIR RESPONSIBILITY IS TO MONITOR THE HDD PATH DURING THE HDD PROCESS UNTIL THE PIPE IS PULLED INTO THE HDD HOLE. THERE WILL BE GOOD RADIO COMMUNICATION WITH THE HDD OPERATOR AND THE GROUND PERSONNEL ON THE HDD PATH. IF ANY INADVERTENT RELEASES IS DISCOVERED THE HDD WILL BE STOPPED UNTIL THE RELEASE IS CONTAINED AND ENBRIDGE GIVES THE HDD CONTRACTOR PERMISSION TO START THE HDD PROCESS WORK AGAIN.

PRIOR TO DRILLING, THE HDD SUPERINTENDENT, HI, AND THE EI WILL VERIFY THAT THE HDD OPERATOR AND FIELD CREW RECEIVE THE FOLLOWING SITE-SPECIFIC TRAINING. BUT NOT LIMITED TO:

- PRIOR TO THE START OF THE HDD EACH PERSON INVOLVED WITH THE HDD WILL BE REQUIRED TO GO THROUGH TRAINING, THIS TRAINING WILL DISCUSS THE HDD PROCEDURES INCLUDING ANY INADVERTENT RETURNS REPORTING;
- PROJECT SPECIFIC SAFETY AND ENVIRONMENTAL TRAINING;
- REVIEW PROVISION OF THIS PLAN AND SITE-SPECIFIC PERMIT REQUIREMENTS;
- REVIEW LOCATION OF SENSITIVE ENVIRONMENTAL RESOURCES AT THE SITE;
- REVIEW DRILLING PROCEDURES FOR RETURN PREVENTION;
- REVIEW THE SITE-SPECIFIC MONITORING REQUIREMENTS;
- REVIEW THE LOCATION AND OPERATION OF RETURN CONTROL EQUIPMENT AND MATERIAL; AND
- REVIEW PROTOCOLS FOR REPORTING OBSERVED INADVERTENT RETURNS.

THE HDD ALIGNMENT WILL BE "WALKED" AND OBSERVED FOR INADVERTENT RETURNS AT LEAST FOUR TIMES PER SHIFT, EACH INSPECTION WILL BE NOTED IN THE HDD CONTRACTOR'S DAILY REPORT AND THE ENBRIDGE CHECK LIST. THIS PROCESS WILL BE EVALUATED FOR EACH DRILL. SOME HDD WILL REQUIRE MORE WALKED AND OBSERVED PROCESS. THE TIMING FOR THE INSPECTION WALKS WILL BE AGREED TO BY THE HDD CONTRACTOR AND ENBRIDGE HI BEFORE THE HDD STARTS. THE TIMING WILL BE RECORDED IN BOTH THE DAILY LOGS FOR BOTH HDD CONTRACTOR AND ENBRIDGE HI.

IF THE HDD OPERATOR OBSERVES A LOSS OF CIRCULATION, THE OPERATOR WILL NOTIFY THE HDD SUPERINTENDENT, HI AND FIELD CREWS OF THE EVENT AND APPROXIMATE POSITION OF THE CUTTING HEAD. WHERE PRACTICAL, A MEMBER OF THE FIELD CREW WILL VISUALLY INSPECT THE GROUND SURFACE NEAR THE POSITION OF THE CUTTING HEAD, SURFACE WATER, WELLS, AND MAPPED SPRINGS WITHIN 2,000 FEET OF THE HDD SITE WILL ALSO BE VISUALLY INSPECTED.

TYPICALLY, INADVERTENT RETURNS ARE MOST OFTEN DETECTED IN THE AREA NEAR THE ENTRY OR EXIT POINTS (APPROXIMATELY 200-FEET) OF THE DRILL ALIGNMENT WHERE THE HDD PATH IS AT SHALLOW DEPTHS, ABOVE BEDROCK, AND IN PERMEABLE/POROUS SOILS. IN THESE OCCURRENCES THE HDD SUPERINTENDENT, EI, AND CI WILL DETERMINE AN ESTIMATED VOLUME AND THE BEST METHODS FOR CONTAINMENT.

IF AN INADVERTENT RETURN IS OBSERVED SOMEWHERE BEYOND:

- FIELD CREW WILL NOTIFY (VIA HAND-HELD RADIO OR CELL PHONE) THE HOD OPERATOR AND CI.
- THE HOD OPERATOR WILL TEMPORARILY CEASE PUMPING OF THE DRILLING FLUID AND NOTIFY THE HOD SUPERINTENDENT AND THE CI. THE HOD SUPERINTENDENT WILL ASSESS THE DRILLING PARAMETERS (DEPTH, TYPE OF FORMATION, FLUID FLOW RATE, AND DRILLING FLUID CHARACTERISTICS) AND PROPOSE APPROPRIATE CHANGES.
- THE HI WILL NOTIFY AND COORDINATE A RESPONSE WITH THE EI. THEY WILL ALSO ASSESS THE POTENTIAL OF THE RETURN TO REACH ADJACENT WATERBODIES, WETLANDS, OR OTHER TYPES OF INFRASTRUCTURE (E.G., WELLS).
- THE HOD SUPERINTENDENT WILL COORDINATE WITH THE HOD SUPERINTENDENT TO DETERMINE WHEN DRILLING OPERATIONS CAN RESUME. THE DRILLING PROCESS WILL NOT BE ALLOWED TO RESUME UNTIL AN ENBRIDGE REPRESENTATIVE APPROVES THE HOD DRILLING TO RESUME.
- THE ENBRIDGE REPRESENTATIVE WILL NOTIFY REGULATORY AUTHORITIES AND THE APPROPRIATE PERMITTING AUTHORITIES AS NECESSARY OF THE EVENT AND PROPOSED RESPONSE AND PROVIDE REQUIRED DOCUMENTATION WITHIN 24 HOURS.
- THE CI WILL PREPARE A REPORT THAT SUMMARIZES THE INCIDENT.

THE HDD SUPERINTENDENT, EI, AND HI WILL COORDINATE INSTALLATION OF APPROPRIATE CONTAINMENT STRUCTURES. SITE TOPOGRAPHY IN CONJUNCTION WITH ACCESS FOR PERSONNEL AND EQUIPMENT TO THE RETURN SITE ARE MAJOR FACTORS IN DETERMINING THE METHODS USED FOR CONTAINMENT AND DISPOSAL. TYPICALLY, CONTAINMENT IS ACHIEVED BY EXCAVATING A SMALL SUMP PIT (APPROXIMATELY 5-CUBIC YARDS) AT THE SITE OF THE RETURN AND/OR SURROUNDING THE RETURN WITH FILTER SOCK AND/OR SAND BAGS. ONCE CONTAINED, THE DRILLING FLUID IS EITHER TRANSPORTED BACK TO THE HDD DRILLING RIG OR TO A DISPOSAL SITE.

THE HDD CONTRACTOR WILL HAVE ON-SITE, PRIOR TO THE DRILLING, AN APPROPRIATE INVENTORY OF MATERIALS AND EQUIPMENT TO CONTAIN INADVERTENT RETURNS. THIS EQUIPMENT WILL BE ON STAND BY FOR THE ENTIRETY OF THE DRILLING PROCESS. THE MATERIAL AND EQUIPMENT WILL INCLUDE, BUT NOT BE LIMITED TO:

- COMPOST FILTER SOCK (12-INCH TO 36-INCH IN ADDITION TO THE PERIMETER CONTROLS SHOWN ON THE DRAWINGS)
- SAND BAGS
- HAND TOOLS (SHOVELS, RAKES, ETC.)
- PUMPS AND HOSES (THREE, 3-INCH TRASH PUMPS WITH 300 FEET OF DISCHARGE HOSES AT EACH HDD LOCATION)
- PUMPED WATER FILTER BAGS
- VACUUM TRUCK(S) (60 BBL OR GREATER CAPACITY)
- BACKHOE
- EQUIPMENT MATS
- AQUA BARRIERS/TURBIDITY CURTAINS
- PERMANENT SEEDING RESTORATION (PER E&S PLAN)

THE SITE-SPECIFIC RESPONSE WILL FOLLOW THE GUIDELINES PROVIDED IN THE FOLLOWING SECTIONS.

- EVALUATE THE AMOUNT OF RETURNS TO DETERMINE IF CONTAINMENT STRUCTURES ARE WARRANTED AND IF THEY WILL EFFECTIVELY CONTAIN THE RETURN.
- PROMPTLY IMPLEMENT APPROPRIATE CONTAINMENT MEASURES AS NEEDED TO CONTAIN AND RECOVER THE SLURRY.
- IF THE RETURN IS WITHIN 100- FEET OF A WETLAND OR WATERBODY, COMPOST FILTER SOCK WILL BE INSTALLED BETWEEN THE RETURN SITE AND THE WETLAND OR WATERBODY.
- IF THE RETURN CANNOT BE CONTAINED, THEN THE OPERATOR MUST SUSPEND DRILLING OPERATIONS UNTIL APPROPRIATE CONTAINMENT IS IN PLACE.
- REMOVE THE FLUIDS USING EITHER A VACUUM TRUCK OR BY PUMPING TO A LOCATION WHERE A VACUUM TRUCK IS ACCESSIBLE.
- RESTORE UPLAND AREA WITH PERMANENT SEEDING, MULCH AND SOIL SUPPLEMENTS PER THE APPROVED E&SCP.

• EVALUATE THE AMOUNT OF RETURN TO DETERMINE IF CONTAINMENT STRUCTURES ARE WARRANTED AND IF THEY WILL EFFECTIVELY CONTAIN THE RETURN.

• PROMPTLY IMPLEMENT APPROPRIATE CONTAINMENT MEASURES TO CONTAIN AND RECOVER THE SLURRY, EFFORTS TO CONTAIN AND RECOVER SLURRY IN WETLANDS OR STREAM MAY RESULT IN FURTHER DISTURBANCE BY EQUIPMENT AND PERSONNEL, AND POSSIBLY OFFSET THE BENEFIT GAINED IN REMOVING THE SLURRY.

• IF THE RETURN CANNOT BE CONTROLLED OR CONTAINED, IMMEDIATELY SUSPEND DRILLING OPERATIONS UNTIL APPROPRIATE CONTROLS CAN BE IMPLEMENTED, AND THE ASSESSMENT OF THE IMPACT TO THE WETLAND IS COMPLETED BY THE EI AND THE GOVERNING AGENCY, DRILLING MAY COMMENCE WHEN APPROVED MEASURES ARE IN PLACE AND INSPECTED BY THE EI. THE ENERGE CONSTRUCTION MANAGER MUST APPROVE THE HOD DRILLING TO RESUME.

ENBRIDGE'S PROPOSED HDD IS BEING DESIGNED TO MINIMIZE THE POTENTIAL FOR INADVERTENT RETURNS. ENBRIDGE'S CONTRACTOR(S) MAY ALSO EMPLOY THE TECHNIQUES DESCRIBED BELOW TO REDUCE THE POSSIBILITY OF INADVERTENT RETURNS.

IF DEEMED NECESSARY, SURFACE CASING MAY BE INSTALLED IN CERTAIN INSTANCES. SURFACE CASING PROVIDES A CONDUIT TO ALLOW DRILLING FLUIDS TO RETURN FROM THE DRILL PATH BACK TO THE SURFACE. ADDITIONALLY, SURFACE CASING HELPS ISOLATE THE DRILL PATH FROM THE REGIONS OF UNSTABLE OVERBURDEN MATERIAL.

ENDBRIDGE'S CONTRACTOR(S) MAY DRILL SOME OF THE PILOT HOLES FROM BOTH SIDES OF THE CROSSING AND PERFORM AN INTERSECT NEAR A PREDETERMINED POINT, USUALLY NEAR THE MIDDLE OF THE CROSSING. THE INTERSECT METHOD IS WIDELY USED IN LONG, LARGE DIAMETER HDDS. THE INTERSECT METHOD REDUCES THE LENGTH THAT MUST BE DRILLED FROM EACH END AND THEREBY DECREASES THE DISTANCE THAT DRILLING FLUIDS NEED TO BE PUMPED IN ORDER TO RETURN TO SURFACE AT THE ENTRY/EXIT POINTS. UTILIZATION OF THIS METHOD IS PARTICULARLY ADVANTAGEOUS IN LONGER CROSSINGS BECAUSE THE REDUCED DISTANCE THAT DRILLING FLUID MUST BE PUMPED SUBSEQUENTLY DECREASES THE FLUID PRESSURE REQUIRED FOR THE DRILLING FLUID TO TRAVEL BACK TO THE ENTRY/EXIT POINTS.

IN THE EVENT OF AN INADVERTENT RETURN IN A FLOWING WATERBODY, THE FOLLOWING APPROACH WILL GENERALLY BE FOLLOWED AFTER THE INADVERTENT RETURN HAS BEEN ISOLATED AND THE FLOW HAS STOPPED. DUE TO THE UNPREDICTABLE NATURE OF THE LOCATIONS AND ENVIRONMENT IN WHICH INADVERTENT RETURNS MAY APPEAR, THE DESCRIPTION CANNOT ENCOMPASS ALL POSSIBLE APPROACHES TO CLEAN-UP UNDER ALL CONDITIONS. AGENCY STAFF AND OTHER EXPERTS WILL BE CONSULTED TO EXTENT PRACTICABLE IN THE DEVELOPMENT OF REMEDIAL CLEAN-UP TECHNIQUES, AS REQUIRED.

THE FOLLOWING ARE STANDARD RESPONSE TECHNIQUES THAT MAY BE APPLIED:

- IF THE BENTONITE MATERIAL FLOWS OVERLAND PRIOR TO ENTERING THE WATERBODY, INSTALLATION OF COMPOST FILTER SOCK OR SANDBAG DAMS AT THE POINT OF ENTRY WILL BE USED TO REDUCE OR STOP THE FLOW; IF THE VENT IS DIRECTLY INTO THE WATERBODY, OTHER MEANS TO ISOLATE THE VENT SITE FROM THE WATERBODY WILL BE USED.
- USING A VACUUM TRUCK OR PUMP(S), WITH A SUFFICIENT HOSE, PERSONNEL WILL REMOVE THE BENTONITE, WORKING FROM DOWNSTREAM TO UPSTREAM, TO ALLOW MAXIMUM VISIBILITY. HAND TOOLS MAY BE USED TO SCARIFY THE SEDIMENTS AND ENSURE REMOVAL TO THE MAXIMUM EXTENT PRACTICABLE.
- IF PUMPS ARE USED, DISCHARGED WATER SHALL BE TO AN IMPERMEABLE STRUCTURE OR TO FILTERING DEVICES SUCH AS A COMPOST FILTER SOCK SUMP OR SANDBAG DAM.
- IF NECESSARY, WATER MAY BE DIVERTED USING TEMPORARY BARRIERS TO ISOLATE THE IMPACT AREA. ONLY A PORTION OF THE STREAM WILL BE DIVERTED TO MINIMIZE DEWATERING IMPACTS. WATER WILL BE ABLE TO PASS THROUGH THE SITE IN ITS NATURAL CONDITION.
- IF IT IS IMPRACTICABLE TO REMOVE THE DRILL FLUID FROM THE SURFACE WATER, A CLEAR WRITTEN EXPLANATION WILL BE SUBMITTED TO THE APPLICABLE REGULATORY AGENCIES.
- ANY DISTURBED SOILS WILL BE STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING, SEEDING AND SOIL SUPPLEMENTS, OR RIPRAP, DEPENDING ON THE SITE CONDITIONS.
- EXPOSED SOILS WILL HAVE TEMPORARY EROSION CONTROL MEASURE ESTABLISHED AS SOON AS PRACTICAL WITH PERMANENT EROSION CONTROLS ESTABLISHED AS SOON AS POSSIBLE AS DESCRIBED IN THE PROJECT E&C.
- DISTURBED VEGETATION WILL BE KEPT TO MINIMUM AND ALL DISTURBED VEGETATION WILL BE RESTORED.

[illegible]

PIPELINE HDD PROCEDURE (CONTINUED)

CLEAN-UP

AFTER COMPLETION OF THE HDD INSTALLATION, THE CI AND THE HDD SUPERINTENDENT WILL DEVELOP SITE-SPECIFIC CLEAN-UP MEASURES FOR APPROVAL BY THE EI. POTENTIAL FOR SECONDARY IMPACT FROM THE CLEAN-UP PROCESS WILL BE EVALUATED, AS WELL AS THE BENEFITS OF CLEAN-UP ACTIVITIES.

THE FOLLOWING MEASURES MAY BE USED:

- DRILLING MUD MAY BE CLEANED UP BY HAND USING HAND SHOVELS, BUCKETS AND SOFT BRISTLED BROOMS MINIMIZING DAMAGE TO EXISTING VEGETATION.
- FRESH WATER WASHES MAY BE EMPLOYED IF DEEMED BENEFICIAL AND FEASIBLE.
- CONTAINMENT STRUCTURES WILL BE PUMPED OUT AND THE GROUND SURFACE SCRAPPED TO BARE TOPSOIL MINIMIZING LOSS OF TOPSOIL OR DAMAGE TO ADJACENT VEGETATION.
- THE RECOVERED DRILLING FLUID WILL BE RECYCLED OR DISPOSED OF AT AN APPROVED UPLAND LOCATION OR DISPOSAL FACILITY. RECOVERED DRILLING FLUID WILL NOT BE DISPOSED OF IN STREAMS OR STORM DRAINS.
- ALL CONTAINMENT STRUCTURES WILL BE REMOVED.
- RECOVERED MATERIALS WILL BE COLLECTED IN CONTAINERS FOR TEMPORARY STORAGE PRIOR TO REMOVAL FROM THE SITE.

HDD CONTINGENCY PLANS

IN THE UNLIKELY EVENT THE HDD CROSSING CANNOT BE COMPLETED ON THE FIRST ATTEMPT, THE APPROVED CONSTRUCTION WORKSPACE AND RIGHTS OF WAY ARE SUFFICIENT TO ALLOW MULTIPLE ATTEMPTS TO INSTALL THE HDD. ANY ABANDONED HDD BORE HOLES WILL BE FILLED WITH GROUT IN THEIR ENTIRETY. IN MOST CASES, SEVERAL ATTEMPTS CAN BE MADE WITHIN THE PERMITTED WORKSPACE BY SLIGHTLY MODIFYING THE HDD GEOMETRY TO ADJUST EITHER THE DEPTH OF THE DRILL PROFILE AND/OR THE HORIZONTAL ALIGNMENT. ADJUSTMENTS IN THE ALIGNMENT AND PROFILE DEPTH CAN, OFTEN TIMES, MINIMIZE CONTACT WITH OR COMPLETELY AVOID LOCALIZED PROBLEMATIC FORMATIONAL ZONES.

IF PROBLEMS PERSIST ALONG THE ORIGINAL DRILL ALIGNMENT, INCLUDING AT ALTERNATE DEPTHS FROM THE FIRST ATTEMPT, THE HDD RIG CAN BE OFFSET LEFT OR RIGHT AND A SECOND PILOT HOLE CAN BE INITIATED ALONG A NEW ALIGNMENT DESIGNED WITH DATA COLLECTED DURING THE FIRST ATTEMPT. THE DRILLING DATA COLLECTED ALONG WITH THE FIRST ALIGNMENT WILL BE UTILIZED TO CREATE A NEW DESIGN THAT WILL, TO THE EXTENT PRACTICAL, MINIMIZE CONTACT WITH PROBLEMATIC FORMATIONAL ZONES ENCOUNTERED DURING THE INITIAL ATTEMPT. IF A FIRST ATTEMPT ALONG THE NEW ALIGNMENT IS NOT SUCCESSFUL, AS DESCRIBED ABOVE, SEVERAL ATTEMPTS CAN BE MADE AT VARIOUS DEPTHS ALONG THE NEW ALIGNMENT.

IF ALL ATTEMPTS FAIL ALONG THIS NEW ALIGNMENT, THE HDD RIG AND EQUIPMENT CAN AGAIN BE MOVED LEFT OR RIGHT WITHIN THE WORKSPACE AND A THIRD NEW PILOT HOLE INITIATED ALONG A NEW DESIGN ALIGNMENT THAT MINIMIZES CONTACT WITH PROBLEMATIC FORMATIONAL ZONES ENCOUNTERED ALONG BOTH THE INITIAL AND SECONDARY ATTEMPTS. IF A FIRST ATTEMPT AT THIS LOCATION ALSO PROVES UNSUCCESSFUL, AS DESCRIBED ABOVE, SEVERAL ATTEMPTS CAN BE MADE AT VARIOUS DEPTHS ALONG THIS ALIGNMENT. IN SUMMARY, THE CONSTRUCTION WORKSPACE CONTAINS SUFFICIENT ROOM TO ALLOW NUMEROUS HDD ATTEMPTS; THEREFORE THESE TECHNIQUES CAN BE UTILIZED UNTIL EITHER THE HDD IS SUCCESSFULLY INSTALLED OR ALL POSSIBILITIES OF A SUCCESSFUL HDD INSTALLATION HAVE BEEN EXHAUSTED.

IN THE VERY UNLIKELY EVENT THAT AN HDD CANNOT BE SUCCESSFULLY INSTALLED, THE METHODS PRESENTED BELOW AND THE ASSOCIATED REQUIRED ACTIVITIES CAN BE CONSIDERED AS POTENTIAL OPTIONS.

REROUTE PIPELINE TO ATTEMPT HDD AT AN ALTERNATE LOCATION OUTSIDE OF THE PROPOSED PIPELINE CONSTRUCTION ROW

- PIPELINE ALIGNMENT WILL BE ALTERED AND A NEW HDD CROSSING WILL BE DESIGNED AT A LOCATION THAT POTENTIALLY WILL POSE LESSER INSTALLATION CHALLENGES.
- THE PROPOSED CHANGE IN LOCATION WILL BE SELECTED VIA DESKTOP ANALYSIS USING EXISTING AERIAL PHOTOGRAPHY AND OTHER AVAILABLE DATA.
- SURVEY PERMISSION WILL BE REQUIRED BEFORE THE REQUIRED CIVIL, ENVIRONMENTAL AND CULTURAL SURVEYS CAN BE PERFORMED. ONCE SURVEY PERMISSION HAS BEEN OBTAINED AND THE AREA IS DETERMINED TO BE ACCEPTABLE FROM A CULTURAL AND ENVIRONMENTAL PERSPECTIVE, GEOTECHNICAL AND GEOPHYSICAL INVESTIGATIONS WILL BE INITIATED TO SUPPORT DESIGN OF A HDD AT THE NEW LOCATION.
- APPROVAL FROM REGULATORY AUTHORITIES, USACE AND STATE AGENCIES WILL BE REQUIRED BEFORE THE HDD IS ATTEMPTED AT THE NEW LOCATION.

OPEN CUT CROSSING;

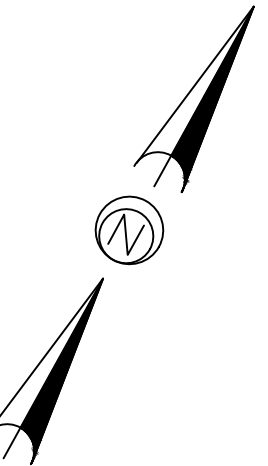
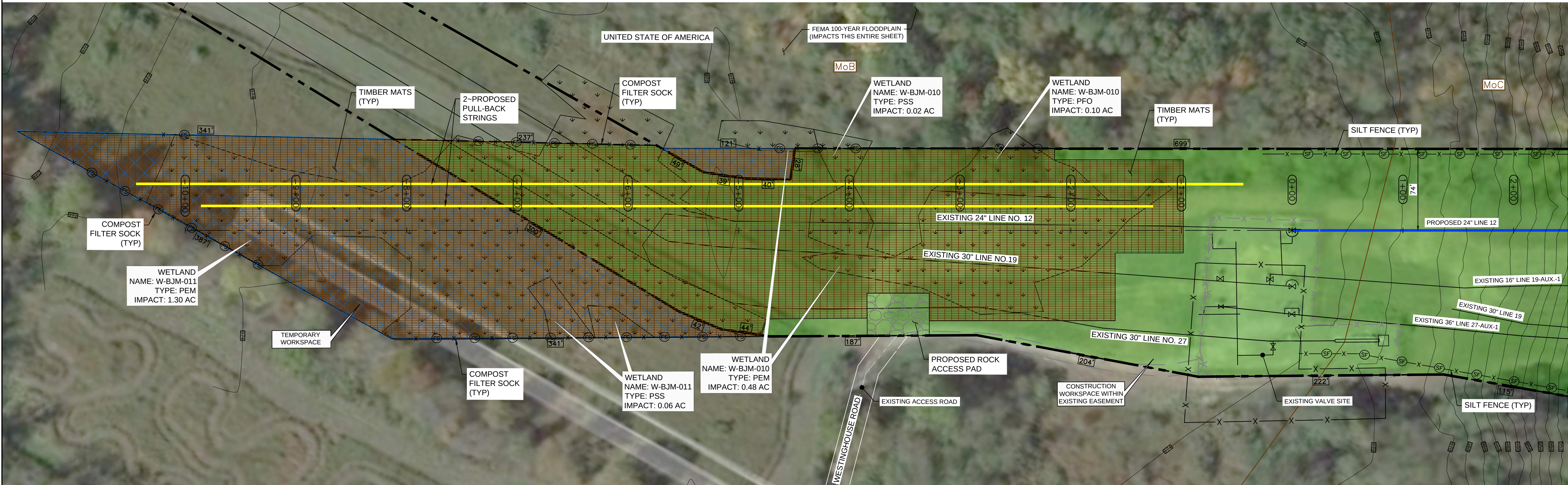
- THIS METHOD INVOLVES THE EXCAVATION OF A TRENCH THROUGH THE WETLAND OR STREAM.
- ADDITIONAL ARMORING OF THE PIPE IN THE RIVER BOTTOM COULD BE REQUIRED TO PROTECT THE INTEGRITY OF THE PIPE.
- EQUIPMENT WOULD HAVE TO WORK IN THE WETLAND OR STREAMS AND STATE MANDATED TURBIDITY LIMITS WOULD APPLY.
- APPROVALS FROM REGULATORY AUTHORITIES, USACE AND STATE AGENCIES WILL BE REQUIRED BEFORE THE CONSTRUCTION BEGINS.
- THIS TYPE OF CROSSING WOULD ALSO ONLY BE CONSIDERED AS LAST RESORT IN THE CASE WHEN ALL OTHER ALTERNATIVES PROVE TO BE UNFEASIBLE.



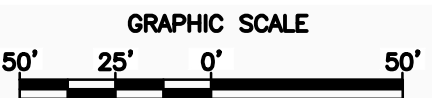
C#				△						 audubon Field Solutions 10205 WESTHEIMER ROAD SUITE 100 HOUSTON, TX 77042 PHONE: (281) 669-0590	ENGINEERING APPROVALS					CONEMAUGH RIVER CROSSING PROJECT DELMONT TO ARMAGH PROPOSED 24-INCH LINE 12 HDD INSTALLATION EROSION AND SEDIMENT CONTROL HDD PROCEDURE NOTES			 Texas Eastern Transmission, LP 5400 Westheimer Ct. Houston, Tx 77056-5310 713 / 627-5400					
				△																				
				△																				
				△																				
				△																				
				△	SNC	RG	ISSUED FOR APPROVAL (05/28/2020)																	
	DWG. NO.	DESCRIPTION			REV	DSN	CK	DESCRIPTION					LGF		04/29/20									
	REFERENCE DRAWINGS					REVISIONS				ITEM NO.	MATERIALS		QTY	TITLE	SIGNATURE	DATE	SIGNATURE	DATE	YEAR: 2020	W.B.S.	SCALE: N/A		DWG. DELM-P-8103	REV. 0

S:\AFS\Projects\Enbridge\Conemaugh_River_Xing\801_Mapping\001_Alignment\Erosion and Sediment Control Plan\Conemaugh River HDD Erosion and Sediment Control Plan.dwg -- PLOT TIME: 5/27/2020 5:04 PM

DERRY TOWNSHIP
WESTMORELAND COUNTY
PENNSYLVANIA

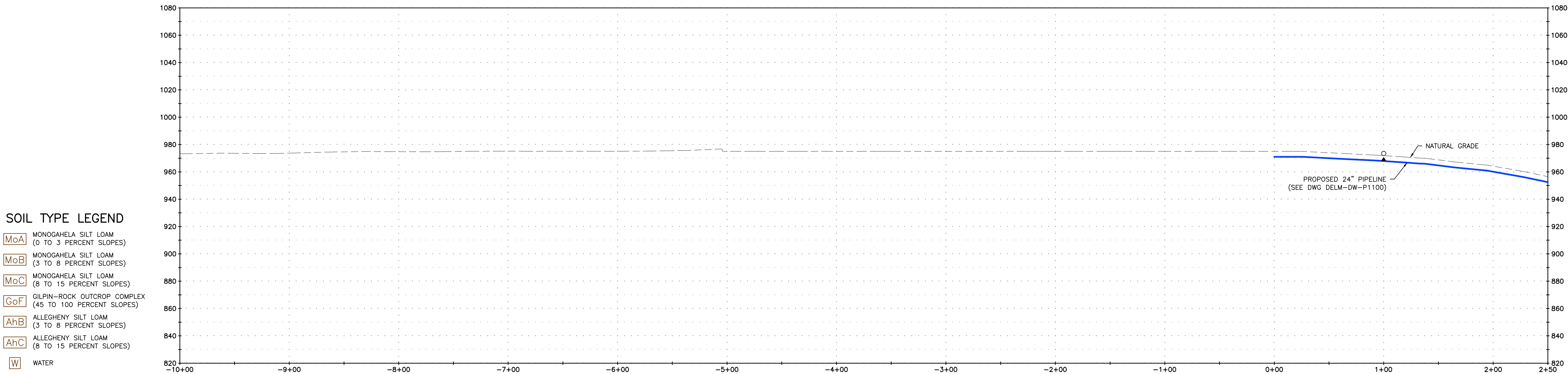


MATCHLINE STA. 2+50
(SEE SHEET DELM-P-8201)



LAND USE

PASTURE



SOIL TYPE LEGEND

MoA	MONOGAHELA SILT LOAM (0 TO 3 PERCENT SLOPES)
MoB	MONOGAHELA SILT LOAM (3 TO 8 PERCENT SLOPES)
MoC	MONOGAHELA SILT LOAM (8 TO 15 PERCENT SLOPES)
GoF	GILPIN-ROCK OUTCROP COMPLEX (45 TO 100 PERCENT SLOPES)
AhB	ALLEGHENY SILT LOAM (3 TO 8 PERCENT SLOPES)
AhC	ALLEGHENY SILT LOAM (8 TO 15 PERCENT SLOPES)
W	WATER

LEGEND

900	EXISTING CONTOURS	---	CAPPED & GROUTED PIPELINE		PROPOSED EROSION CONTROL BLANKET
	PROPERTY LINE	---	PROPOSED PIPELINE (HDD)		PROPOSED STONE CONSTRUCTION ENTRANCE
---	COUNTY LINE	---	PROPOSED PIPELINE (REPLACEMENT)		SOIL TYPE BOUNDARY AND SOIL BOUNDARY
---	ASSUMED FLOODWAY (50 FEET)	---	PROPOSED PULL-BACK STRING		LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY
	EXISTING WETLAND	---	PROPOSED SILT FENCE (BY TYPE)		ADDITIONAL PERMANENT EASEMENT
---	EXISTING EASEMENT	---	PROPOSED COMPOST FILTER SOCK		CONSTRUCTION WORKSPACE WITHIN EXISTING EASEMENT
---	EXISTING ACCESS ROAD	---	PROPOSED SLOPE BREAKER		TEMPORARY WORKSPACE
X	FENCE	---	PROPOSED TRENCH BREAKER		DRILL TARGET
---	FOREIGN PIPELINE	---	PROPOSED ORANGE SAFETY FENCE		VALVE
---	TEXAS EASTERN PIPELINE	---	PROPOSED TIMBER MAT		
---	OVERHEAD WIRES	---			

△			
△			
△			
△			
△			
△	LGF	RG	ISSUED FOR APPROVAL (05/28/2020)
REV	DSN	CK	DESCRIPTION
REVISIONS			

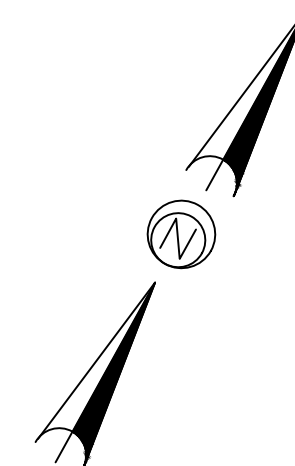
audubon
Field Solutions
10205 WESTHEIMER ROAD
SUITE 100
HOUSTON, TX 77042
PHONE: (281) 669-0590

DRAWN BY	ENGINEERING APPROVALS				
	BID	CONSTRUCTION			
LGF		04/13/20			
TITLE	SIGNATURE	DATE	SIGNATURE	DATE	

CONEMAUGH RIVER CROSSING PROJECT DELMONT TO ARMAGH PROPOSED 24-INCH LINE 12 HDD INSTALLATION EROSION AND SEDIMENT CONTROL PLAN					
LOC. WESTMORELAND & INDIANA COUNTY, PA					
YEAR: 2020	W.B.S.	SCALE: 1=50'H, 1"=40'V	DWG. DELM-P-8200	REV. 0	

Texas Eastern Transmission, L.P.
5400 Westheimer Ct. Houston, TX 77056-5310 713 / 627-5400

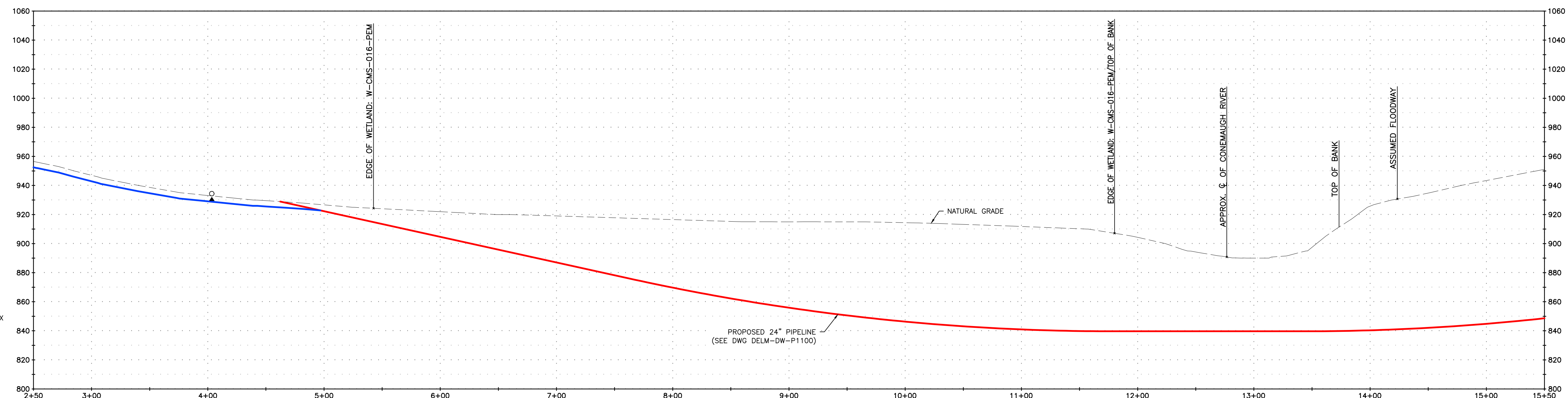




GRAPHIC SCALE

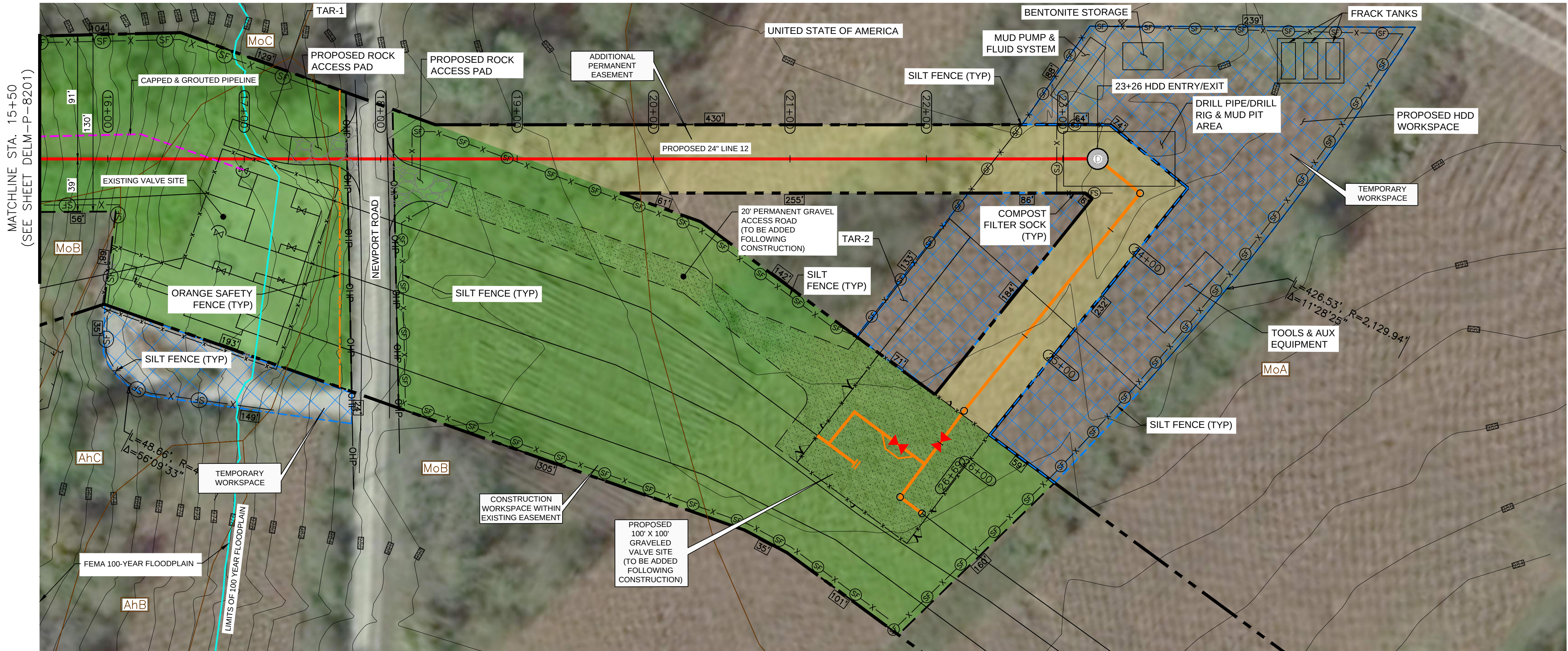
50' 25' 0' 50'

LAND USE		PASTURE	OPEN WATER	PASTURE	
----------	--	---------	------------	---------	--

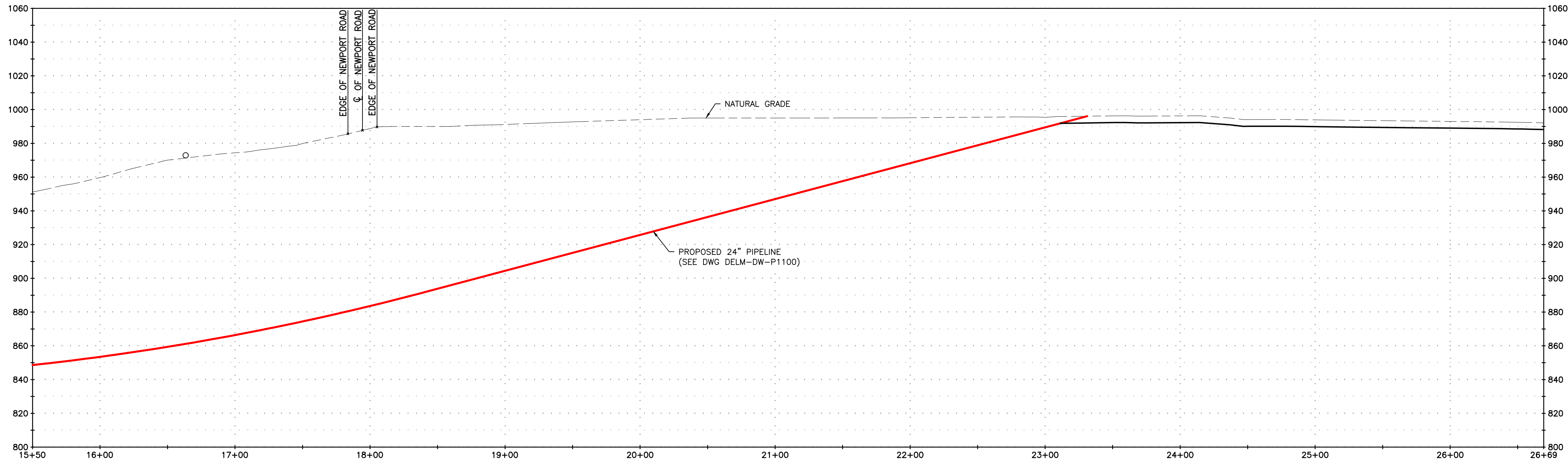


S:\AFS\Projects\Enbridge\Conemaugh_River\190913 - Conemaugh River HDD Erosion and Sediment Control Plan\Conemaugh River HDD Erosion and Sediment Control Plan.dwg - PLOT TIME: 5/27/2020 5:05 PM

BLACKLICK TOWNSHIP.
INDIANA COUNTY.
PENNSYLVANIA



LAND USE PASTURE ROW PASTURE



SOIL TYPE LEGEND

- MoA MONOGAHELA SILT LOAM (0 TO 3 PERCENT SLOPES)
MoB MONOGAHELA SILT LOAM (3 TO 8 PERCENT SLOPES)
MoC MONOGAHELA SILT LOAM (8 TO 15 PERCENT SLOPES)
GoF GILPIN-ROCK OUTCROP COMPLEX (45 TO 100 PERCENT SLOPES)
AhB ALLEGHENY SILT LOAM (3 TO 8 PERCENT SLOPES)
AhC ALLEGHENY SILT LOAM (8 TO 15 PERCENT SLOPES)
W WATER

LEGEND

- 900 EXISTING CONTOURS
R PROPERTY LINE
COUNTY LINE
ASSUMED FLOODWAY (50 FEET)
EXISTING WETLAND
EXISTING EASEMENT
EXISTING ACCESS ROAD
FENCE
FOREIGN PIPELINE
TEXAS EASTERN PIPELINE
OVERHEAD WIRES
CAPPED & GROUTED PIPELINE
PROPOSED PIPELINE (HDD)
PROPOSED PIPELINE (REPLACEMENT)
PROPOSED PIPELINE (STANDARD LAY)
PROPOSED PULL-BACK STRING
PROPOSED SILT FENCE (BY TYPE)
PROPOSED COMPOST FILTER SOCK
PROPOSED SLOPE BREAKER
PROPOSED TRENCH BREAKER
PROPOSED ORANGE SAFETY FENCE
PROPOSED TIMBER MAT
PROPOSED EROSION CONTROL BLANKET
PROPOSED STONE CONSTRUCTION ENTRANCE
SOIL TYPE BOUNDARY AND SOIL BOUNDARY
LAND USE TYPE BOUNDARY AND LAND USE BOUNDARY
ADDITIONAL PERMANENT EASEMENT
CONSTRUCTION WORKSPACE WITHIN EXISTING EASEMENT
TEMPORARY WORKSPACE
DRILL TARGET
VALVE

△			
△			
△			
△			
△			
△	LGF	RG	ISSUED FOR APPROVAL (05/28/2020)
REV	DSN	CK	DESCRIPTION
REVISIONS			

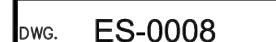
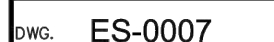
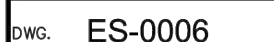
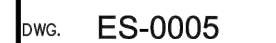
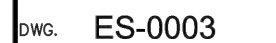
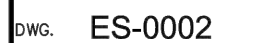
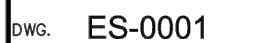
audubon
Field Solutions
10205 WESTHEIMER ROAD
SUITE 100
HOUSTON, TX 77042
PHONE: (281) 669-0590

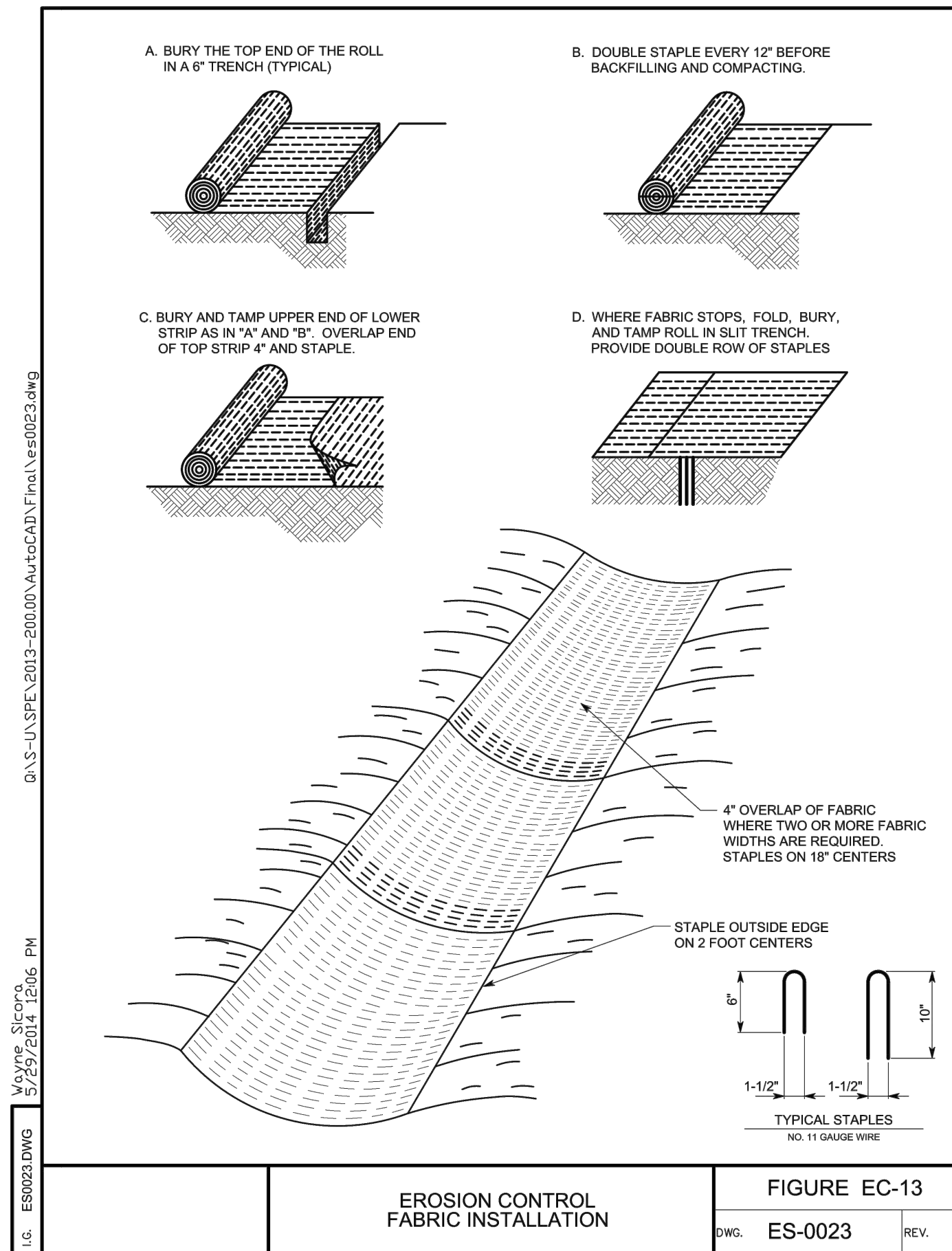
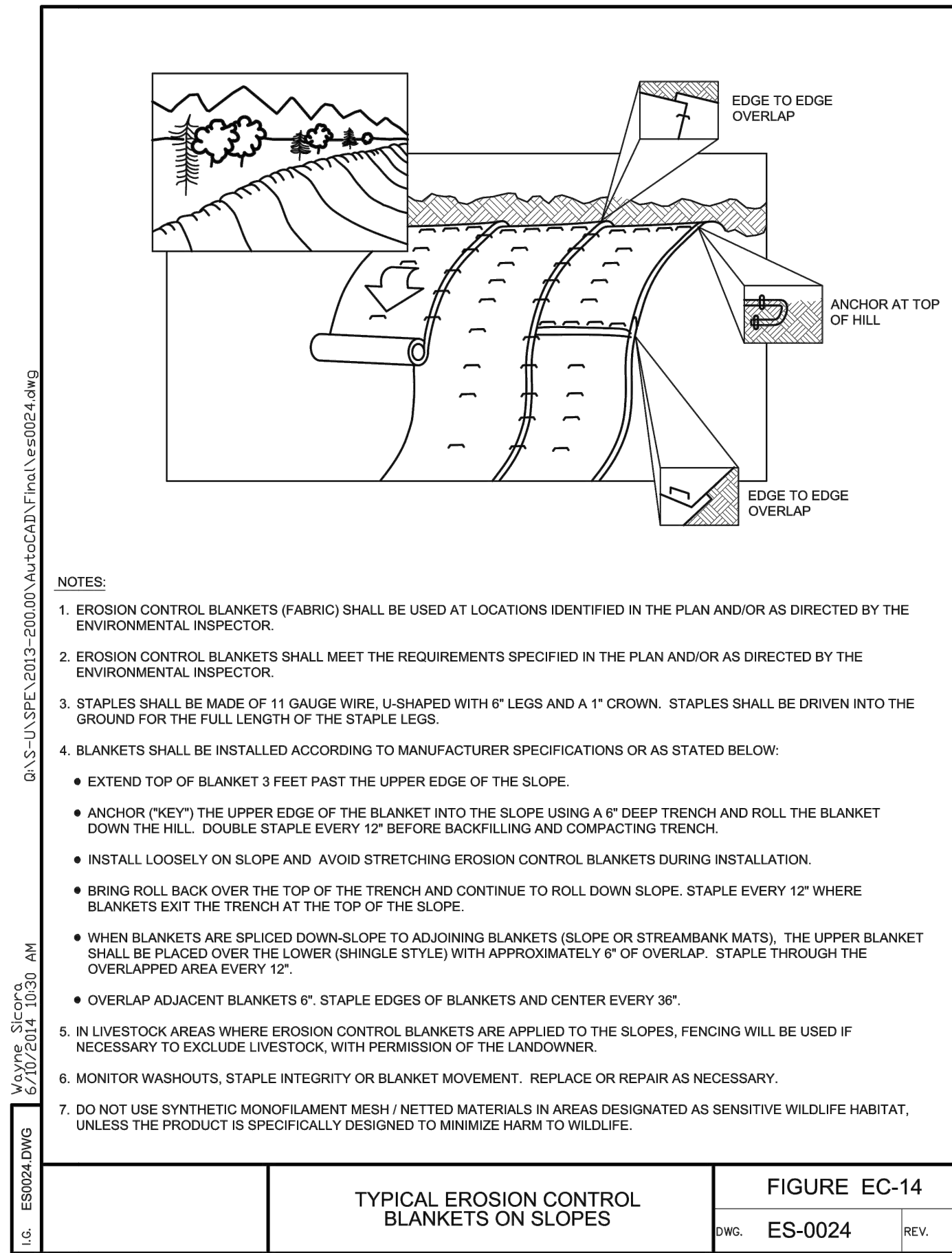
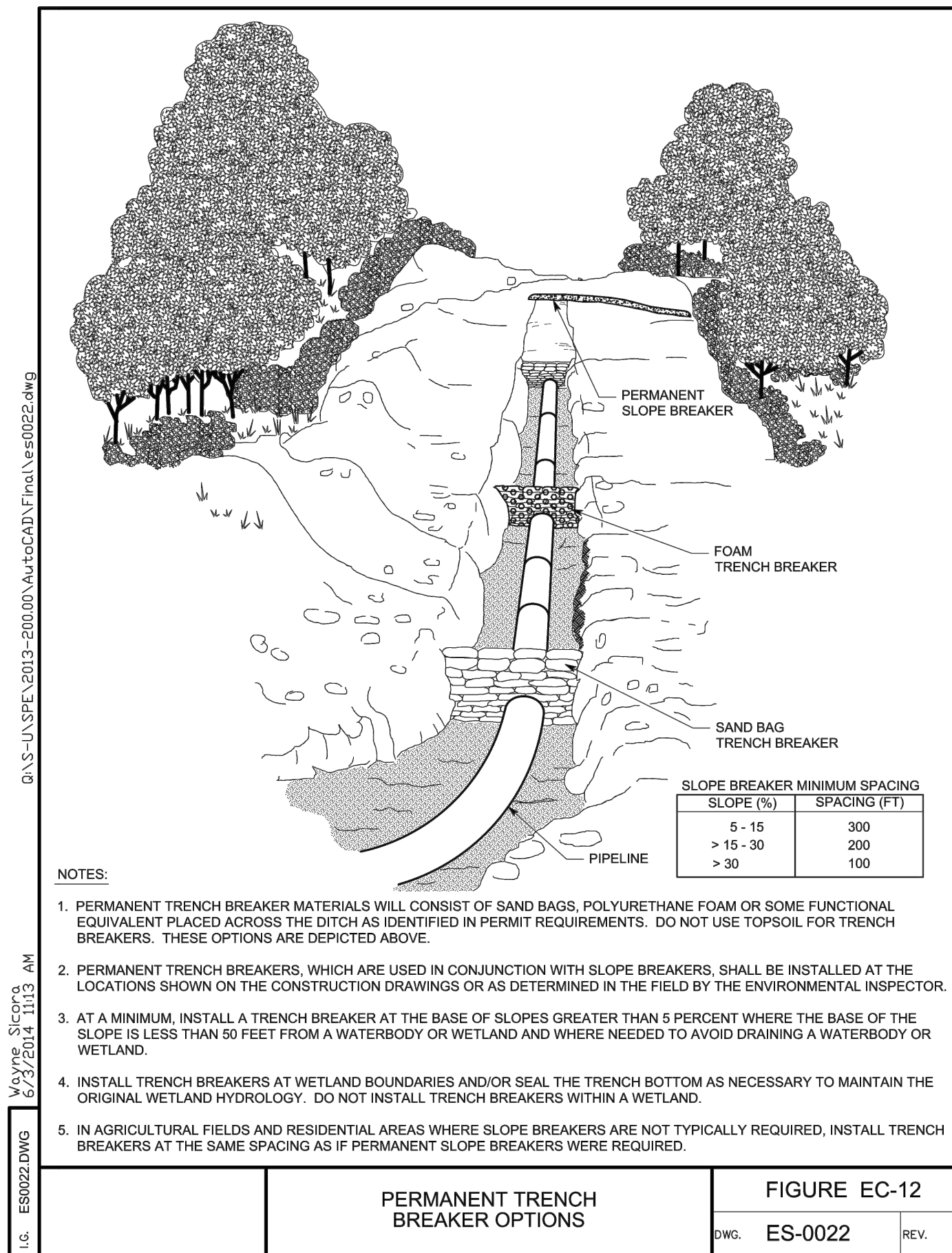
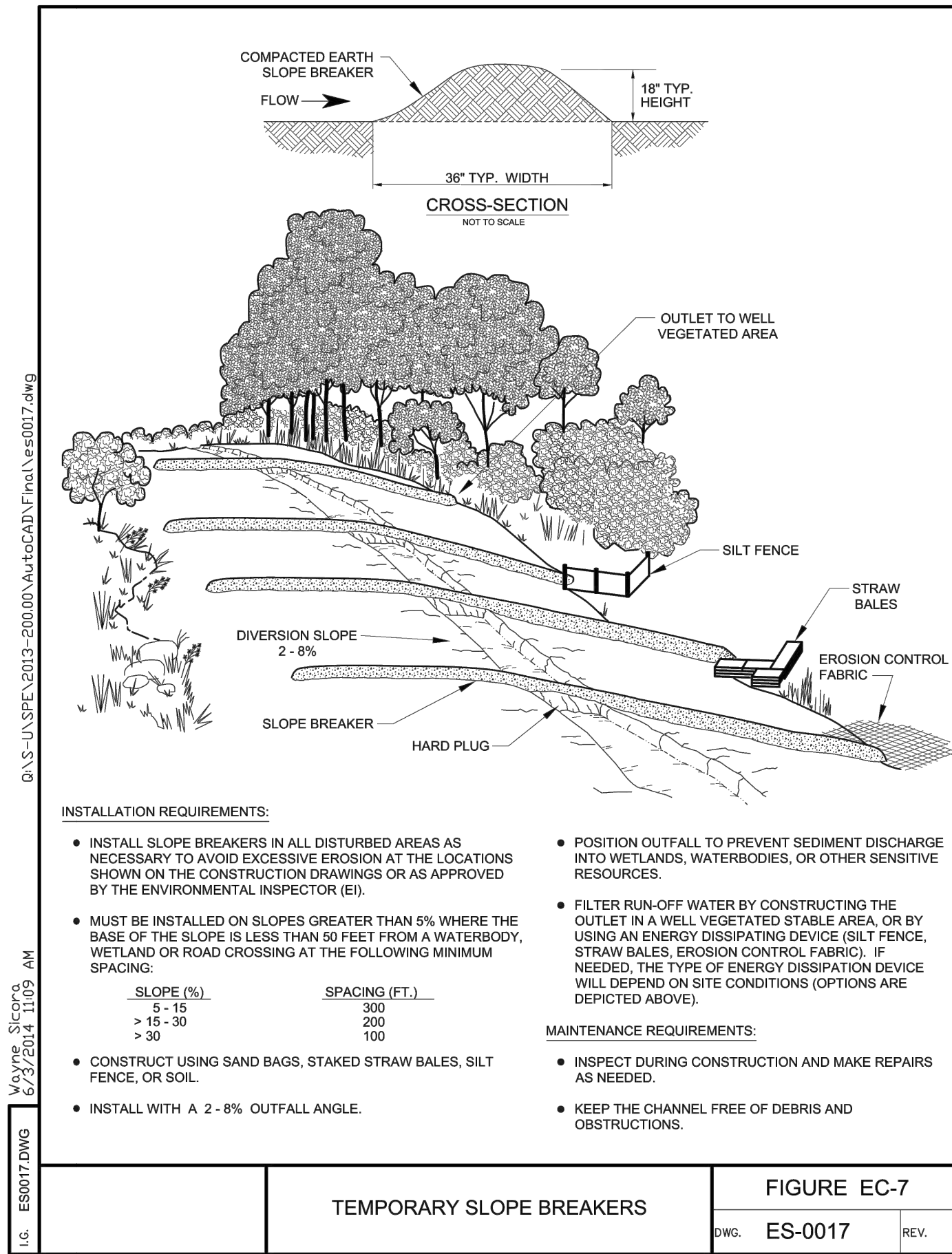
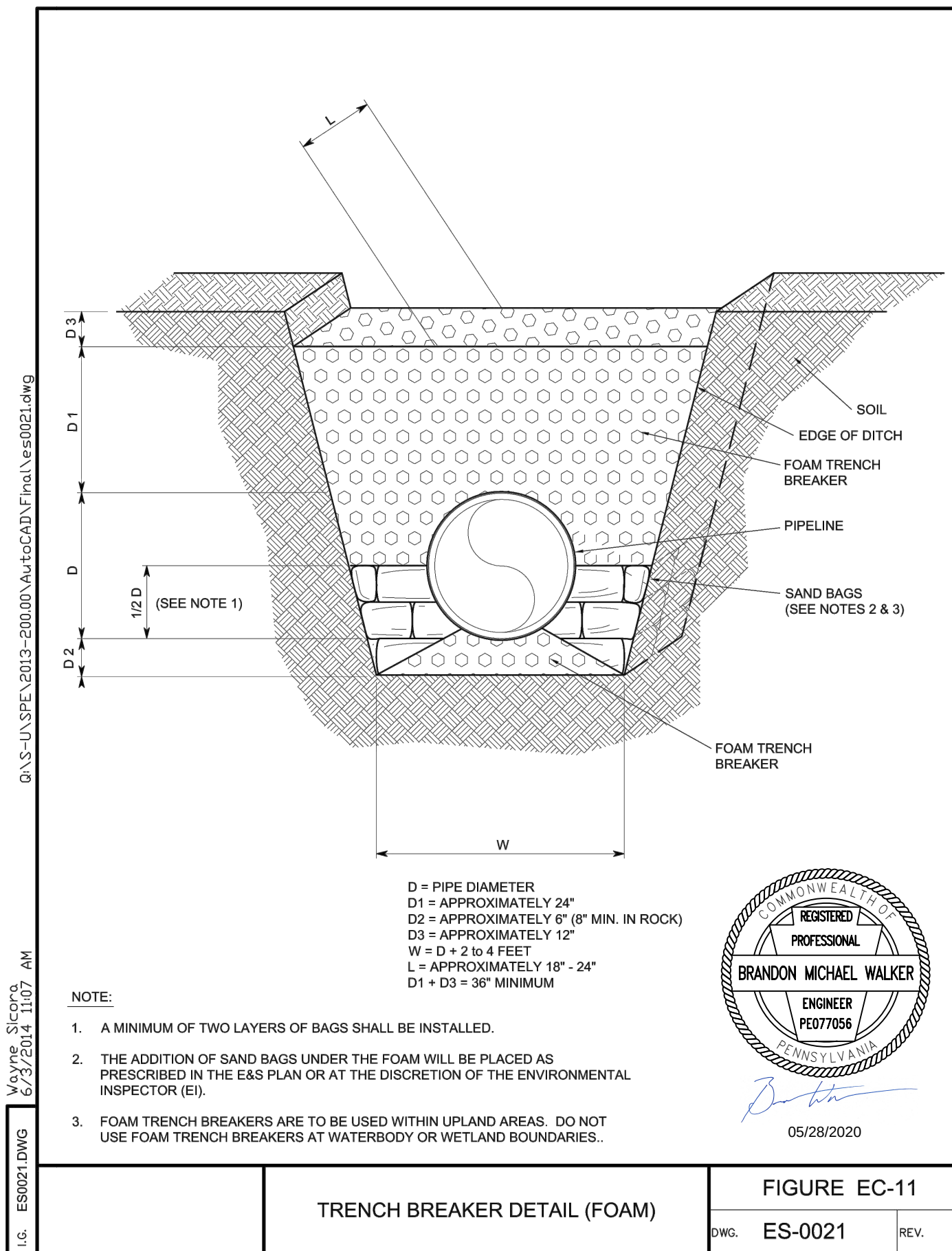
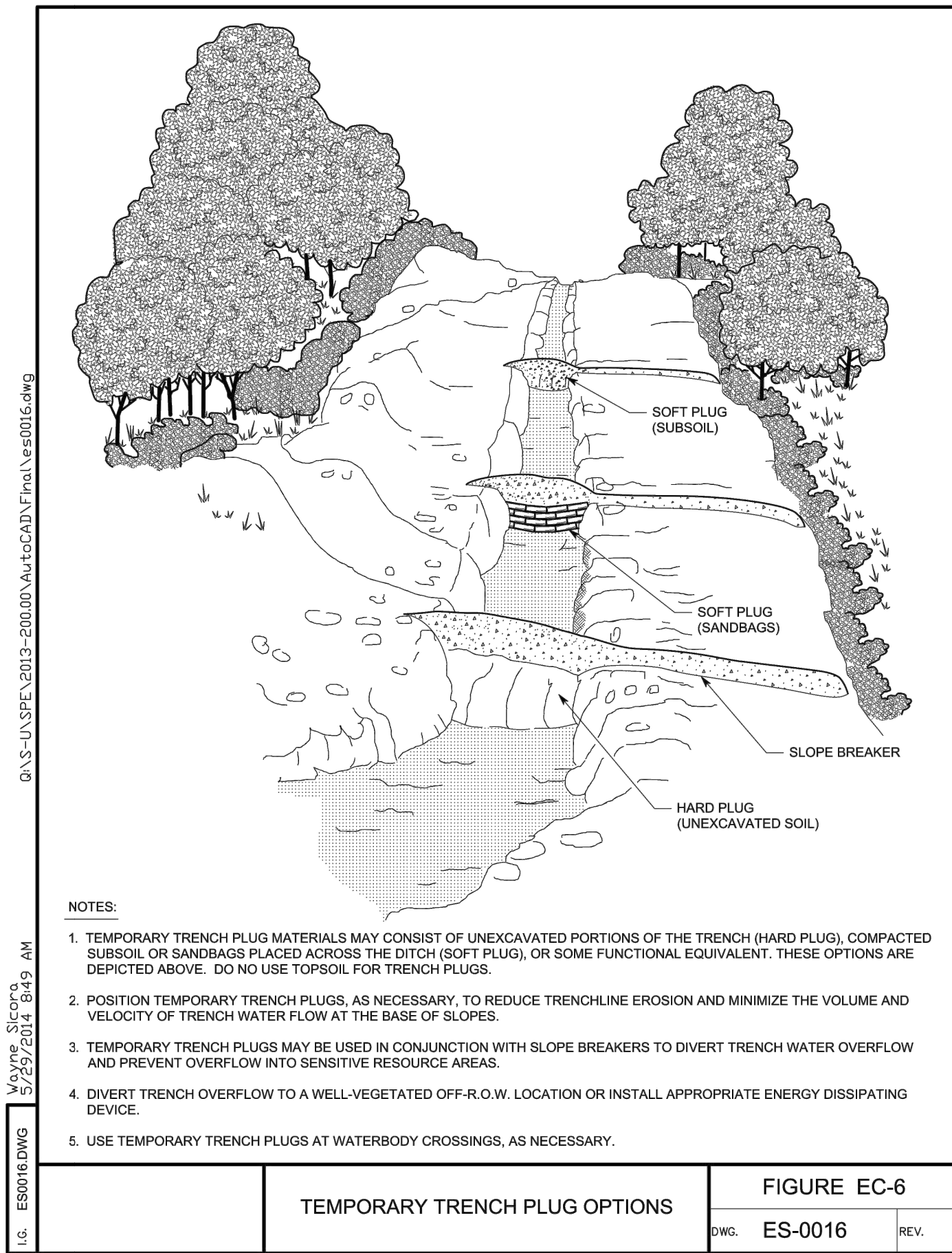
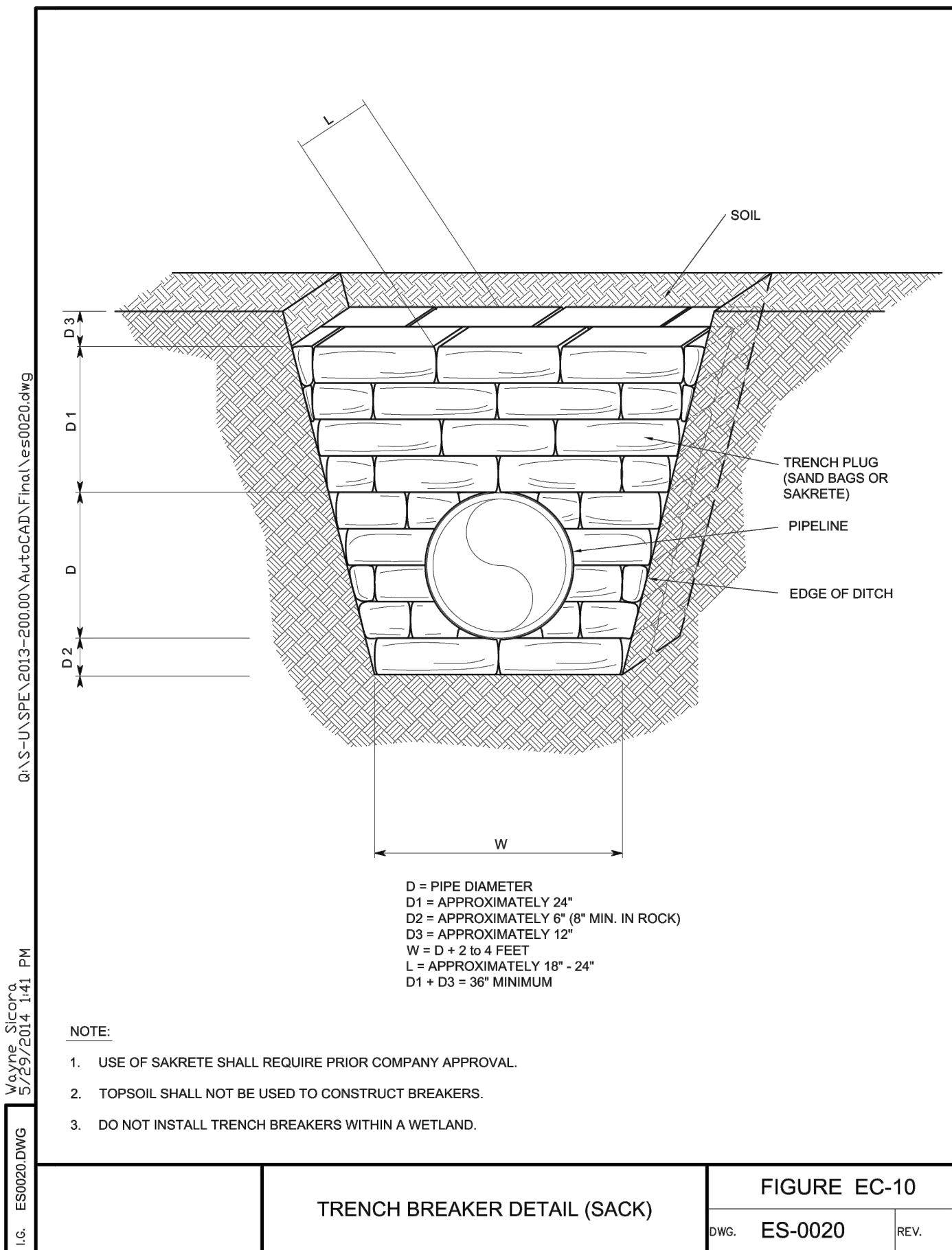
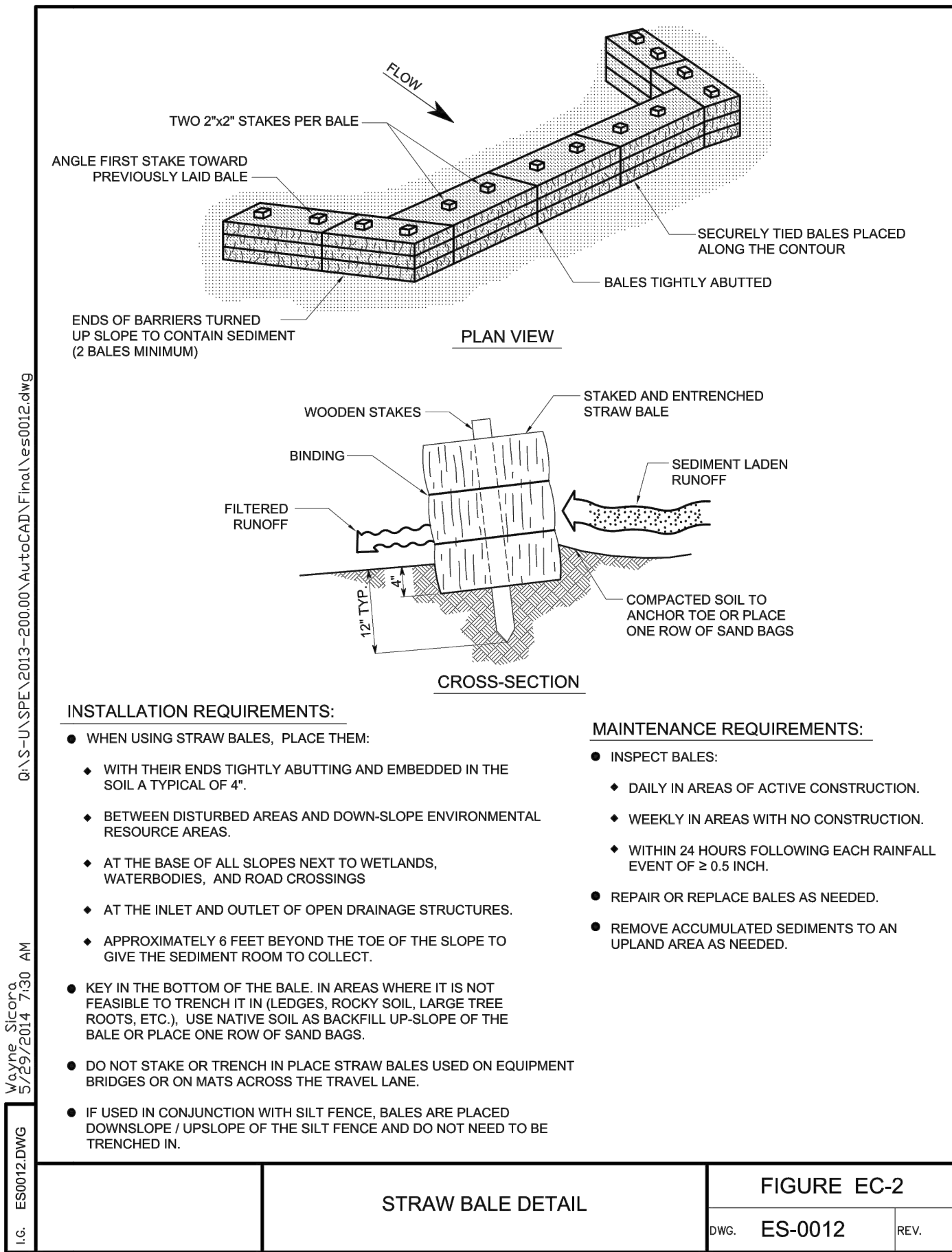
DRAWN BY	ENGINEERING APPROVALS			
	BID	CONSTRUCTION		
LGF		04/13/20		
TITLE	SIGNATURE	DATE	SIGNATURE	DATE

CONEMAUGH RIVER CROSSING PROJECT DELMONT TO ARMAGH EROSION AND SEDIMENT CONTROL PLAN				
LOC. WESTMORELAND & INDIANA COUNTY, PA				
YEAR: 2020	W.B.S.	SCALE: 1=50'H, 1"=40V	DWG. DELM-P-8202	REV. 0

ENBRIDGE
Texas Eastern Transmission, L.P.
5400 Westheimer Ct. Houston, TX 77056-5310 713 / 627-5400





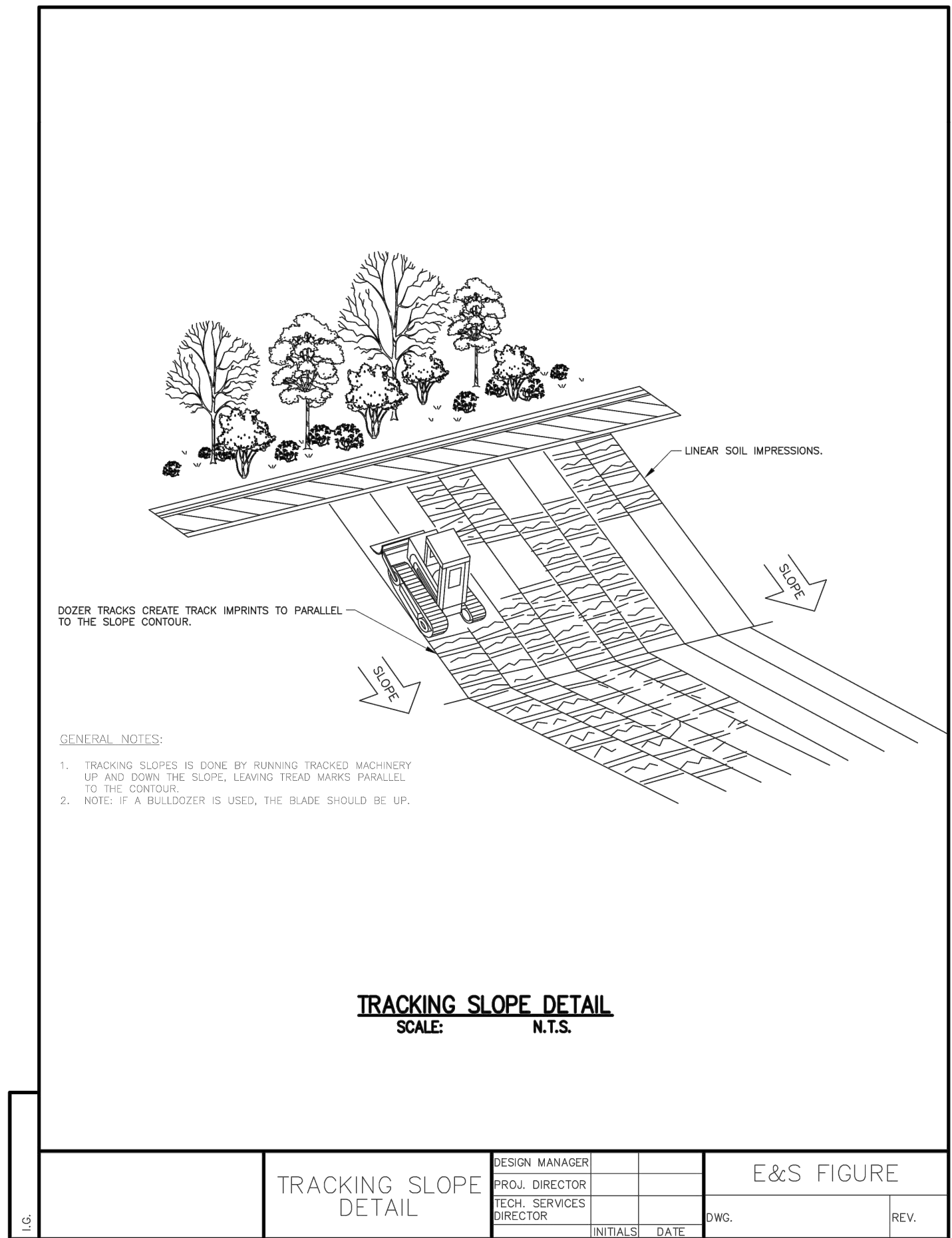
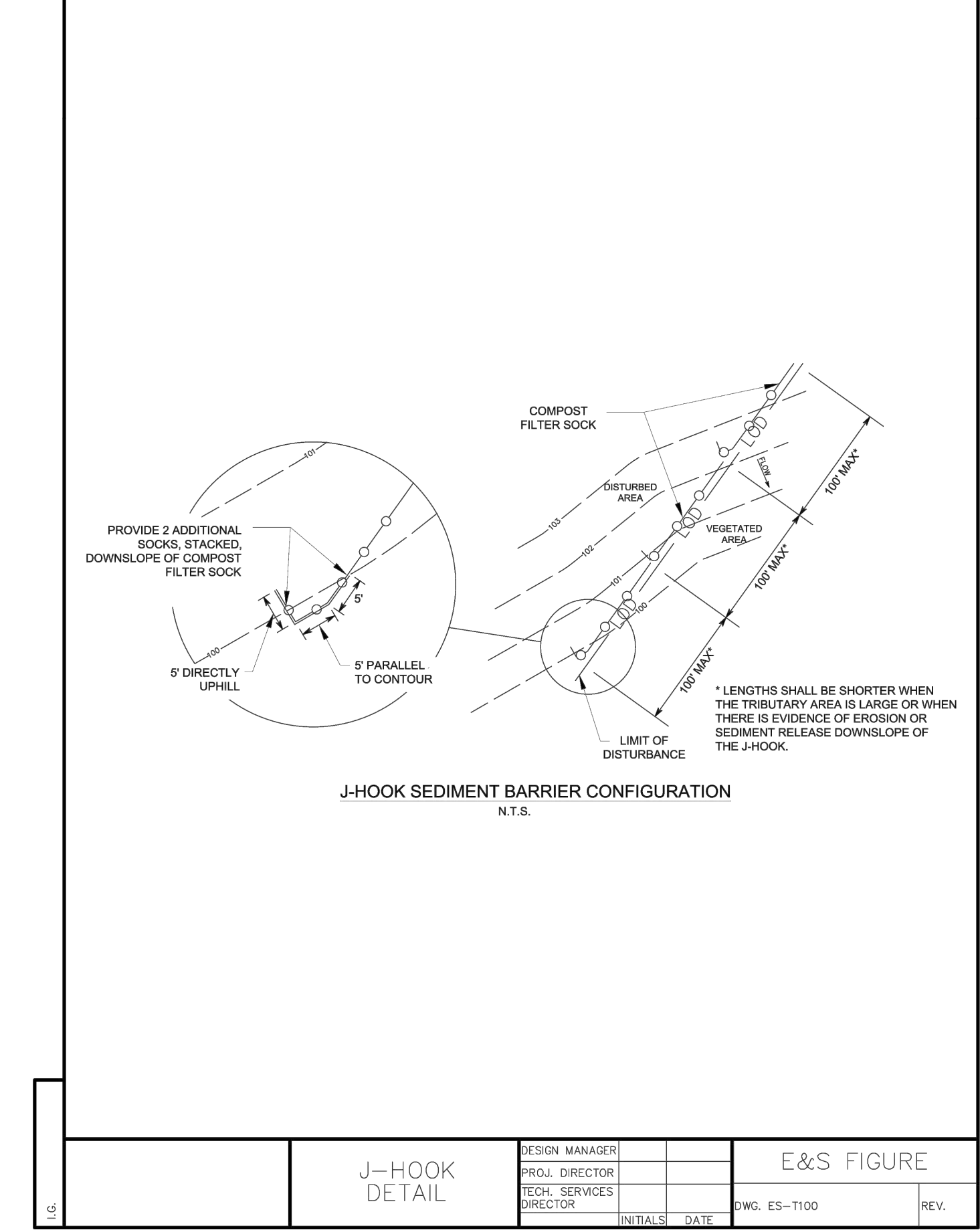
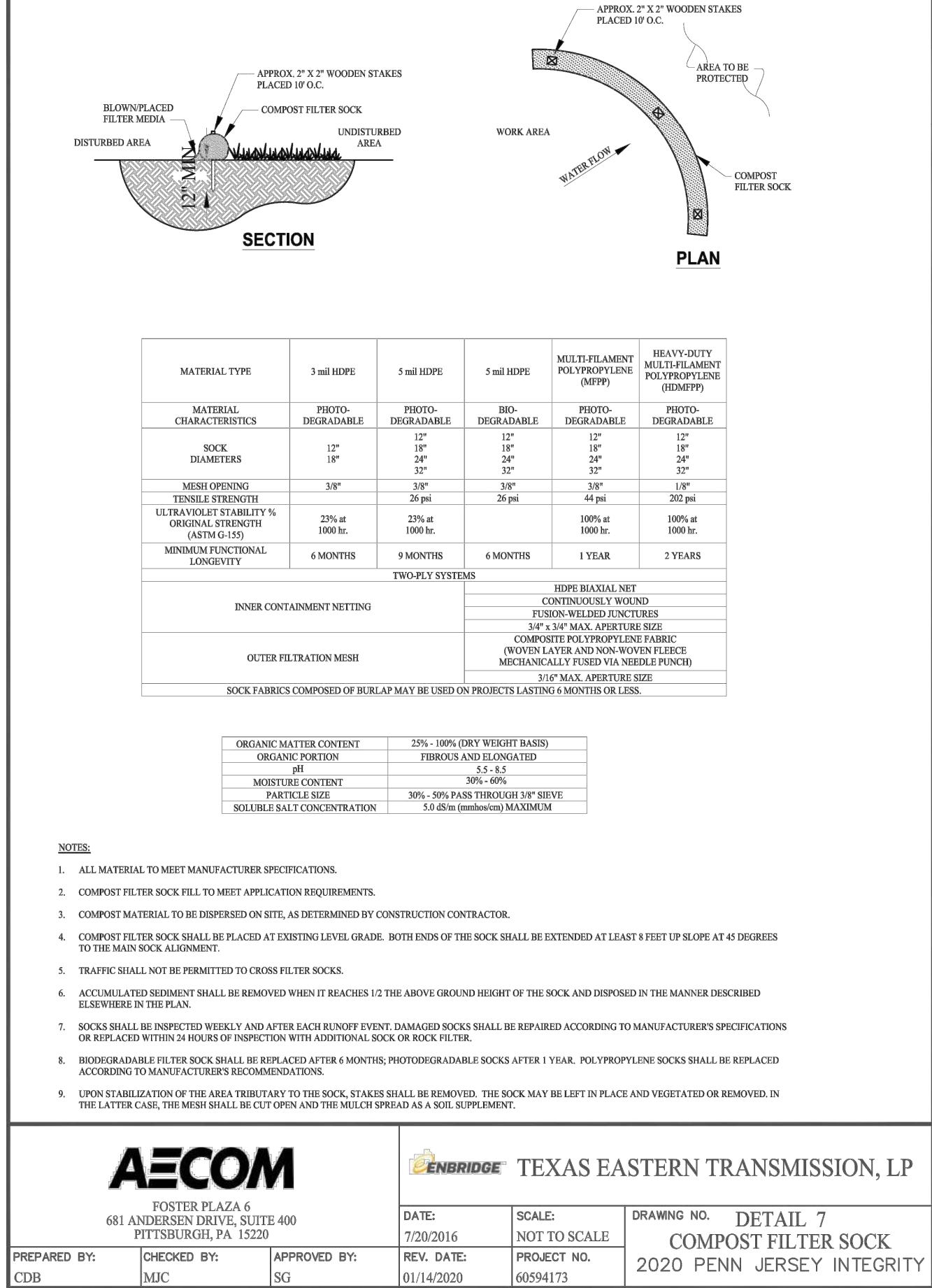
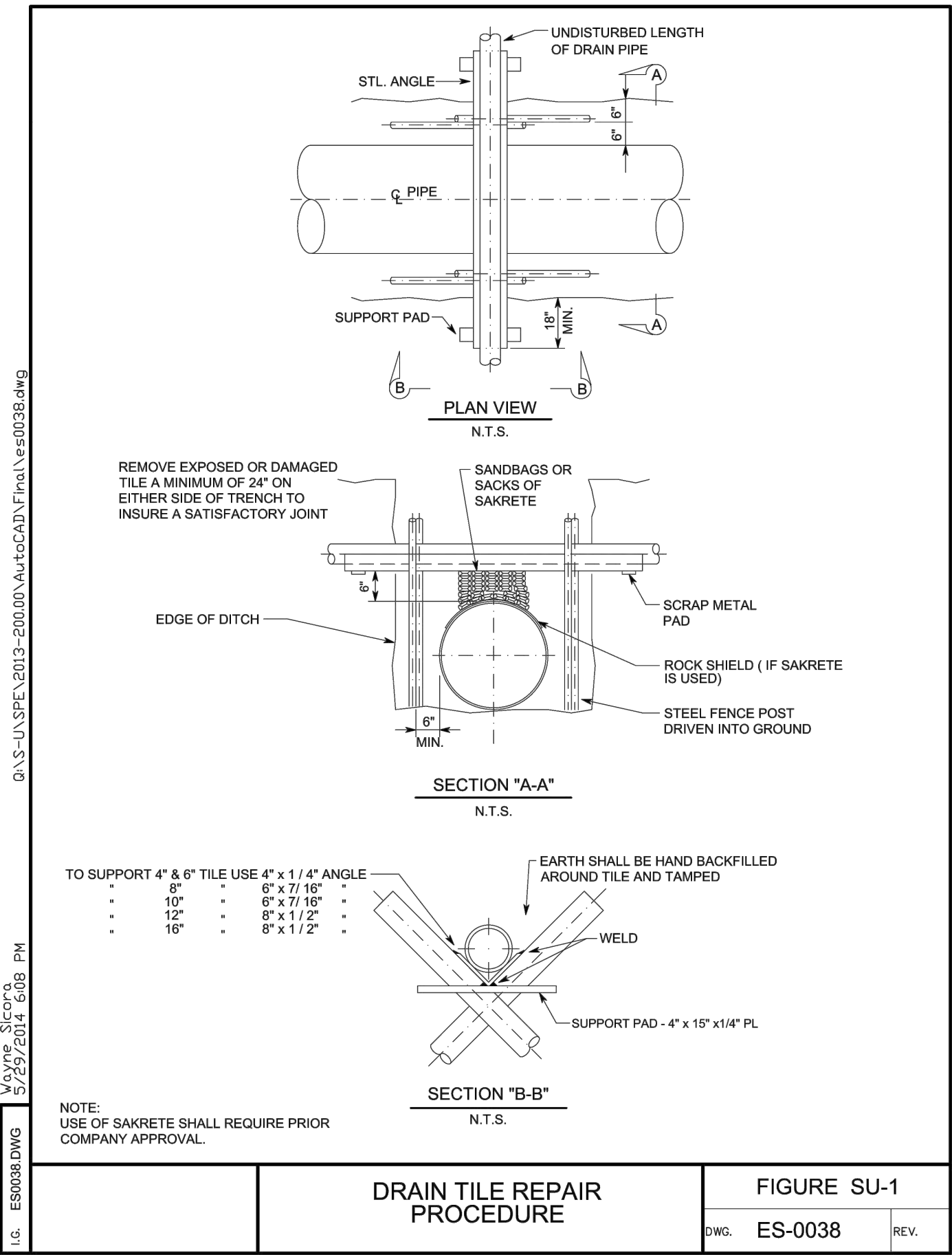
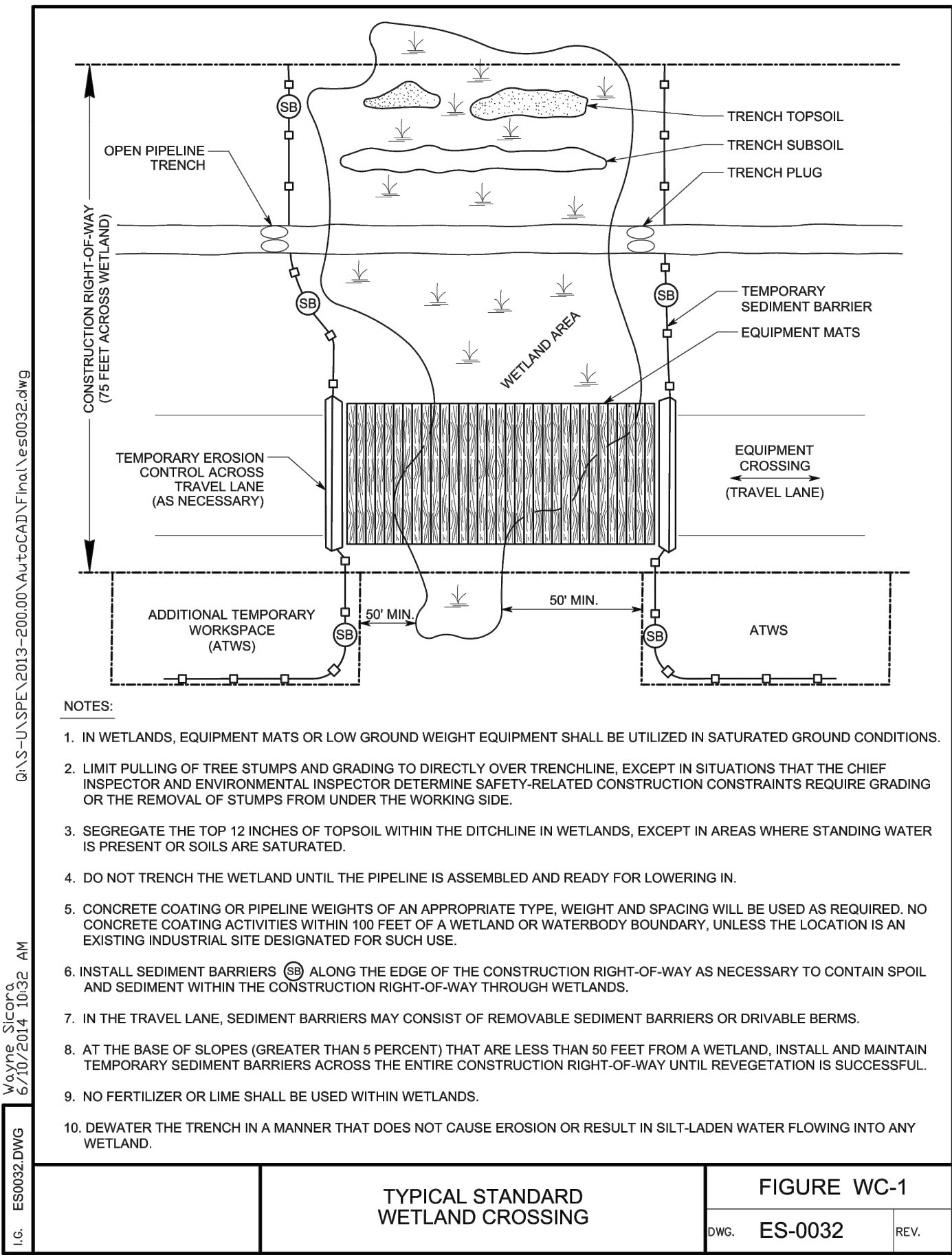


REV	DSN	CK	DESCRIPTION
REV	DSN	CK	DESCRIPTION

ENBRIDGE	TEXAS EASTERN TRANSMISSION, L.P.
5400 Westheimer Ct., Houston, TX 77056-3310	713/627-5400

DRAWN: LGF	DATE: 04/29/20	EROSION AND SEDIMENT CONTROL FIGURES
CHECKED: RG	DATE: 04/29/20	W.B.S. NO.
	YEAR: 2020	SHEET 2 OF 3

S:\A\Projects\Enbridge\Conemaugh_River_Xing\190913 - Conemaugh River Xing\801_Mapping\001_Alignment\Erosion and Sediment Control Plan\Conemaugh River HDD Erosion and Sediment Control Plan_SNC COVER AND NOTES_recover.dwg -- PLOT TIME: 5/26/2020 5:10 PM



REV	DSN	CK	DESCRIPTION	REV	DSN	CK	DESCRIPTION

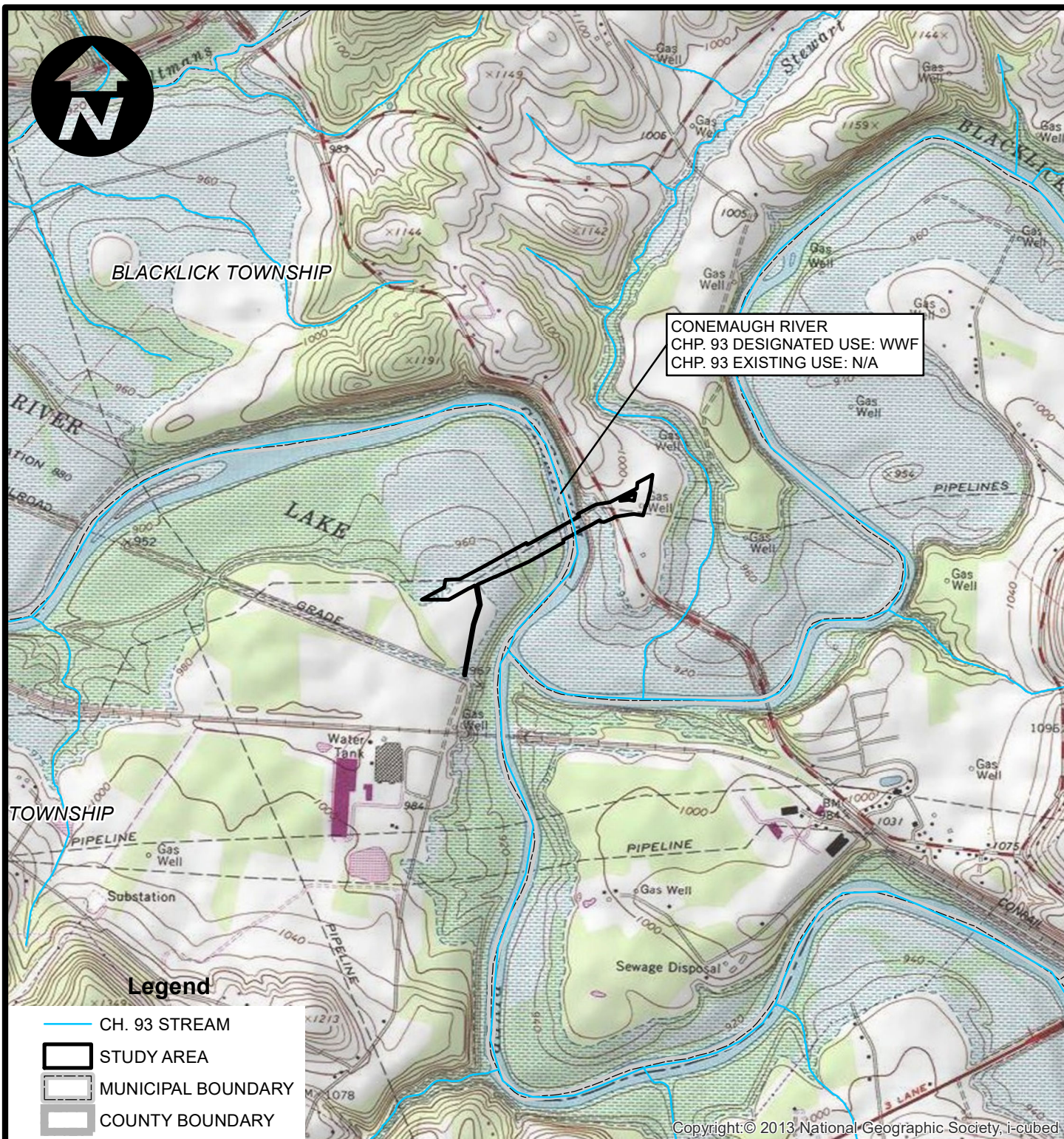


DRAWN: LGF	DATE: 04/29/20	EROSION AND SEDIMENT CONTROL FIGURES
CHECKED: RG	DATE: 04/29/20	W.B.S. NO.
	YEAR: 2020	SHEET 3 OF 3



Appendix B

USGS Project Location Map



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

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

AECOM

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

ENBRIDGE

TEXAS EASTERN TRANSMISSION, LP

PREPARED BY:
JAS

CHECKED BY:
MAB

APPROVED BY:
SLH

DATE:
4/23/2020

SCALE:
1" = 2,000'

PROJECT NO.
60594173

DRAWING NO.

FIGURE 1
 LOCATION MAP

2020 INTEGRITY PROGRAM
 CONEMAUGH RIVER CROSSING PROJECT
 INDIANA AND WESTMORELAND COUNTIES, PENNSYLVANIA

Page 1 of 1

Appendix C

Erosion and Sediment Control Plan Narrative

Erosion and Sediment Control Plan

Texas Eastern Transmission, LP
Conemaugh River Crossing Project
Indiana and Westmoreland Counties, Pennsylvania

June 2020

Submitted By:

Texas Eastern Transmission, LP
890 Winter Street, Suite 300
Waltham, MA 02451

Prepared By:

AECOM
715 Washington Boulevard
Williamsport, Pennsylvania 17701



TABLE OF CONTENTS

1.0 PROJECT OVERVIEW.....	1
1.1 INTRODUCTION.....	1
1.2 PROJECT DESCRIPTION.....	1
2.0 EXISTING CONDITIONS.....	2
3.0 TOPOGRAPHIC FEATURES.....	2
4.0 SOIL CHARACTERISTICS.....	2
4.1 SOIL IDENTIFICATION.....	2
4.2 CONSTRUCTION TECHNIQUES OR SPECIAL CONSIDERATIONS TO ADDRESS LIMITATIONS.....	3
5.0 EARTH DISTURBANCE ACTIVITY.....	3
5.1 LIMITS OF DISTURBANCE.....	3
5.2 PROPOSED IMPROVEMENTS AND LAND USES.....	3
6.0 PROJECT SITE RUNOFF.....	3
7.0 SURFACE WATER CLASSIFICATION.....	4
7.1 STREAM CROSSINGS.....	4
7.2 WETLAND CROSSINGS.....	4
7.3 FLOODWAY CROSSINGS.....	4
8.0 BMP DESCRIPTION NARRATIVE.....	5
8.1 TEMPORARY STRUCTURAL PRACTICES.....	5
8.2 PERMANENT STRUCTURAL PRACTICES.....	6
8.3 PERMANENT AND TEMPORARY VEGETATIVE PRACTICES.....	6
9.0 BMP INSTALLATION SEQUENCE NARRATIVE.....	8
9.1 GENERAL.....	8
9.2 CONSTRUCTION SEQUENCE.....	8
10.0 SUPPORTING CALCULATIONS AND MEASUREMENTS.....	10
11.0 E&SC PLAN DRAWINGS.....	11
12.0 MAINTENANCE PROGRAM.....	11
12.1 INSPECTION AND MAINTENANCE BMPs.....	11
12.2 INSPECTION AND MAINTENANCE SCHEDULE.....	14
13.0 MATERIAL RECYCLING AND DISPOSAL.....	15
13.1 MATERIAL WASTE HANDLING AND RECYCLING.....	15
14.0 NATURALLY OCCURRING GEOLOGIC FORMATIONS AND SOIL CONDITIONS.....	16
15.0 THERMAL IMPACTS.....	16
16.0 E&SCP AND PCSM/SR PLAN CONSISTENCY.....	17
17.0 RIPARIAN FOREST BUFFERS.....	17
18.0 ANTIDEGREDATION REQUIREMENTS.....	18
19.1 EMERGENCY CONTACT INFORMATION.....	19
19.0 REFERENCES.....	22

TABLES

- Table 1 - Soil Series and Limitations
- Table 2 - Seed Mixtures and Mulch for Revegetation

FIGURES

- Figure 1 - Project Location Map

E&SCP DRAWINGS**APPENDICES**

- Appendix A - Wetland and Watercourse Delineation Report

1.0 PROJECT OVERVIEW

1.1 INTRODUCTION

AECOM Technical Services, Inc. (AECOM) has prepared this Erosion and Sediment Control Plan (E&SCP) for Texas Eastern Transmission, LP (Texas Eastern). The purpose of this Plan is to address control of accelerated erosion and sedimentation resulting from earth disturbance activities associated with the Conemaugh River Crossing Project (Project) located in Blacklick Township, Indiana County and Derry Township, Westmoreland County, Pennsylvania (PA). The Project involves replacing a section of their existing Line 12, a 24-inch natural gas pipeline, beneath the Conemaugh River. This E&SCP, if properly implemented, will provide for effective erosion and sediment controls (E&SCs) throughout construction.

The purpose of this E&SCP document is to minimize and/or avoid potential adverse environmental impacts due to the operation and maintenance activities associated with the natural gas pipeline. The proposed practices are intended to maintain, to the fullest extent practicable, the integrity of sensitive resources such as wetlands and streams or protected habitats, if any, located within the work areas. The Plan consists of this written narrative and the attached appendices including plan drawings and design calculations. It was developed to be in accordance with the requirements of 025 PA Administrative Code Chapters 78 and 102, as well as the Clean Streams Law (35 P. S. §§ 691.1001), as amended, utilizing guidelines and best management practices (BMP) information provided in the PA Department of Environmental Protection (PADEP) document: *Erosion and Sediment Control Best Management Practice Manual*, dated March 2012.

An up-to-date copy of this E&SCP (including this narrative and all appendices) shall be maintained and available at the Project site during all stages of earth disturbance activity.

1.2 PROJECT DESCRIPTION

The Project involves replacing a section of Texas Eastern's existing Line 12, 24-inch diameter natural gas pipeline, due to the discovery of an anomaly adjacent to the Conemaugh River that required investigation and repair to comply with United States (US) Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations. A section of Line 12 will be replaced in-situ from the existing mainline valve (MLV) on the west side of the Conemaugh River to the horizontal direction drilling (HDD) bore pit; HDD will be used to install a section of pipeline under the Conemaugh River; and a section of pipeline will be installed between the HDD bore pit and a new MLV on the east side of the Conemaugh River. Approved Chapter 105/Section 404 permit(s) from PADEP and/or US Army Corps of Engineers (USACE) are to be obtained prior to any wetland or stream crossing.

The Project is located mostly within existing maintained right-of-way (ROW) on either side of the Conemaugh River, but will require some temporary workspace outside of the existing ROW as well as a small area of new permanent easement. Laydown areas and temporary workspaces will be utilized within the ROW during construction. Approximately 0.76 acres of new ROW will be acquired to accommodate the new pipeline connecting the HDD segment to the new MLV in the existing easement. The ROW will be accessed via Westinghouse Road on the west side of the Conemaugh River and via Newport Road on the east side. A new permanent access road 20 feet wide and 375 feet long will be installed on the east side of the river from Newport Road to access the new permanent MLV.

Approximately 12.23 acres of earth disturbance will occur as a result of the Project. These disturbances will be temporary with the exception of the 0.45 acres required for the permanent MLV and access road. Once the pipeline is installed, the LOD will be restored to original topographic conditions and disturbed areas will be immediately seeded and mulched. Best Management Practices (BMPs) will be used during all phases of

construction. Texas Eastern proposes to begin construction in February 2021 and ending in June 2021. The area and duration of earth disturbance are to be minimized to the extent practical.

The outline of this plan is organized based on the Notice of Intent (NOI) Checklist included in Section 1 of this ESCGP-3 Permit Application.

2.0 EXISTING CONDITIONS

The Project area has, with the exception of an agricultural area, been utilized as a utility corridor for the existing Texas Eastern ROW. The USACE is the primary land owner of the entire project area including an area of East side of River that is leased to the PA Game Commission (PGC).

The Project is located mostly within existing maintained ROW on either side of the Conemaugh River, but will require some temporary workspace outside of the existing ROW as well as a small area of new permanent easement. There are currently four high-pressure natural gas transmission pipelines in operation within the project ROW, the 24-inch Line 12, the 30-inch Line 19, the 16-inch Line 19-AUX and the 36-inch Line 27-AUX. Through periodic vegetation management, the ROW is maintained in a mixed herbaceous and shrub state. Immediately surrounding the ROW within the Project area are agricultural fields and forestland.

3.0 TOPOGRAPHIC FEATURES

Terrain along the ROW consists of flat to gradually sloping land on the west side of the river and steep sloping to flat land on the east side of the river. Site elevations vary from 992 feet to 880 feet above mean sea level as shown on the United States Geological Survey (USGS) 7.5-minute quadrangle (Blairsville) depicted on the Project Location Map provided as Figure 1.

The E&SCP Drawings depict the topography of the site and the surrounding area as well as all relevant existing site features. The existing features include the topography of the project site and the surrounding area, mapped soil boundaries, municipal and county boundaries, known property, easement, and right-of-way boundaries, roadways, streams, watercourses, existing structures, existing ground cover (including tree lines and other significant vegetative features), utilities, and other important features.

4.0 SOIL CHARACTERISTICS

4.1 SOIL IDENTIFICATION

Seven soil map units are located within the Project Area. The soils of the site are shown on the E&SCP Drawings, and the soil limitations of the site are shown on the Table 1. This table contains the types, depth, slope and limitations of the soils within the project area. Additional information in the soil report includes data on the physical characteristics of the soils, such as their texture, resistance to erosion and suitability for the intended use. The limitation of soils pertaining to earthmoving projects, and the means to address the identified soils limitations are included on the E&SCP drawings. These soil boundaries and associated information were obtained from the United States Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database.

To counteract erodible soils, erosion controls will be in place and functional prior to earth disturbances, and stabilization practices will be implemented in disturbed areas as soon as practical.

4.2 CONSTRUCTION TECHNIQUES OR SPECIAL CONSIDERATIONS TO ADDRESS LIMITATIONS

See Table 1 and ESCP Drawings for soil series and limitations crossed by the Project. In most situations, typical pipeline construction equipment and BMPs will be sufficient to manage the proposed work. At a minimum, trench plugs and ROW diversions (waterbars) will be installed where indicated on the plans and on slopes in order to prevent stormwater-related erosion problems during construction and after backfilling.

Severe erosion hazard limitations shall be immediately reduced by the installation and maintenance of ROW diversions, sediment barriers, and seed and mulch. Proposed permanent access roads will be graded to direct stormwater into Post-Construction Stormwater Management (PCSM) BMPs. Permanent controls such as permanent seeding and mulching shall reduce the long-term potential for erosion. Soils disturbed during construction activities will be returned to pre-construction contours once work activities are complete and the area will be revegetated and stabilized.

5.0 EARTH DISTURBANCE ACTIVITY

5.1 LIMITS OF DISTURBANCE

The necessary permits and authorizations from PADEP or conservation district, related to the earth disturbance activity need to be obtained before commencing the earth disturbance activity. The amount of earth disturbed is to be minimized as much as possible. The Project area contained within the LOD including pipeline and additional workspaces is approximately 12.23 acres and is shown on the E&SCP Drawings. These drawings depict the proposed facilities and site features and include the limits of earth disturbance, the locations of existing roads, and the location of proposed BMPs. This disturbance is to be temporary and disturbed areas are to be immediately seeded and mulched upon placement of the proposed pipeline and associated fill.

5.2 PROPOSED IMPROVEMENTS AND LAND USES

The pipeline will be constructed in Indiana and Westmoreland Counties. The Project will involve the replacement of an existing segment of pipeline, primarily across agricultural land and maintained ROW. No permanent topographic or land cover changes are proposed aside from long-term maintenance to trim woody vegetation and occasional mowing. Upon completion of construction, any disturbed areas will be stabilized with vegetative cover as indicated on the E&SC Plan drawings.

6.0 PROJECT SITE RUNOFF

The Project area is linear in nature. The majority of runoff from the Project will occur through overland flow from temporarily disturbed areas to existing agricultural and forested areas. Construction will occur so that the Project will be returned to pre-construction contours allowing for the existing drainage patterns to be intact. No permanent changes to topography or drainage patterns are proposed.

The Project proposes the construction of one permanent gravel access road and one permanent gravel mainline valve site. An infiltration trench is proposed along the access road to mitigate the increase in peak rates and runoff volumes caused by the addition of permanent impervious areas. Due to the linear nature of the remaining portions of this Project and the negligible change in land use from pre to post-construction conditions, it is anticipated that there will be no increase in runoff volume and peak rate of discharge for the Project, outside of the proposed permanent gravel areas.

Please see Appendix A (Calculations) in Section 6 of the ESCGP-3 Application for calculations performed to size the infiltration basin.

7.0 SURFACE WATER CLASSIFICATION

AECOM completed a wetland and watercourse investigation of the project area. The boundary of this site investigation and all environmental resources identified during this investigation are contained within the *Wetland and Watercourse Delineation Report* included in Appendix A.

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

According to the 2018 Pennsylvania Integrated Water Quality Monitoring and Assessment Report, the Conemaugh River is not listed as a siltation impaired waterbody (PADEP, 2018).

Three wetlands identified by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) are located within the Study Area as shown on Figure 2 in the attached *Wetland and Watercourse Delineation Report* (Appendix A). They are identified as follows:

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

The attached E&SCP Drawings depict the locations of the Conemaugh River and the field-delineated wetlands in and near the LOD for the Project. A summary of all surface water features crossed by the LOD of the Project is provided in the Chapter 105 Permit Application.

7.1 STREAM CROSSINGS

The Conemaugh River is the only stream crossing associated with this Project. The Conemaugh River will be crossed via HDD bore, resulting in no surficial impacts. This crossing is shown on the E&SCP Drawings and additional information on the construction sequence associated with the HDD of this stream is provided in Section 9.2

7.2 WETLAND CROSSINGS

Three wetland crossings were identified along the proposed Project area. One wetland is being crossed via HDD, resulting in no surficial impacts. Two wetlands will be crossed via matting to create temporary workspace for construction activities. These crossings are shown on the E&SCP Drawings and additional information on the construction sequence associated with on these wetland crossings is provided in Section 9.2.

7.3 FLOODWAY CROSSINGS

The floodway associated with the Conemaugh River crossings will be crossed via HDD bore, resulting in no surficial impacts.

8.0 BMP DESCRIPTION NARRATIVE

The E&SC BMPs for this earth disturbance activity have been planned to minimize the extent and duration of the proposed earth disturbance, to protect existing drainage features and vegetation, minimize soil compaction, and employ measures and controls that minimize the generation of increased runoff. Specific BMPs have been selected for this site in order to achieve these broad goals. The location of each proposed BMP is shown on the E&SCP drawings. These BMPs are the minimum controls necessary to protect off-site areas from sediment-laden runoff generated within the LOD. Additional controls may be required depending on the progress of construction and varying conditions encountered.

Temporary controls that will be used or may be used based on field conditions are described below. Other structural controls as described below may also be used as deemed necessary based on conditions encountered in the field. Installation guidelines and locations for the BMPs are as shown on the E&SCP Drawings and Standard Detail Sheets. The temporary control measures that will be utilized on this Project include, but are not limited to:

8.1 TEMPORARY STRUCTURAL PRACTICES

Rock Construction Entrances: In order to prevent the tracking of mud onto paved roadways, rock construction entrances (RCEs) shall be installed from any public road, as shown on the E&SCP Drawings and Standard Detail Sheets. The Contractor may deviate from the locations shown on the plan within the LOD, but must obtain approval from the Permittee and Sealing ESCGP-3 Engineer. Upon site stabilization, the RCEs shall be removed along with any unsuitable material, and the area restored according to the Construction Sequence in Section 9.2. All sediment deposited on public roadways shall be removed by the Contractor immediately. Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts or other drainage courses is not acceptable. Gravel will be used to limit dust and erodibility.

Temporary Waterbars: Waterbars will be installed in accordance with the Standard Detail on the drawings to reduce the velocity of water flow during rain events. Waterbars should be constructed at a slope of 2 percent and discharge to a well-vegetated area. Waterbars should not discharge into an open trench. Waterbars should be oriented so that runoff will be directed towards the downslope side of the disturbed area and avoid flowing back onto the ROW. Obstructions (e.g., sediment barriers, etc.) should not be placed in any waterbars. They should be located below the discharge end of the waterbar. Only temporary waterbars will be used in agricultural and residential areas.

Compost Filter Sock (CFS): CFS is a sediment barrier consisting of a mesh sock and coarse compost. CFS will be placed to control runoff and collect sedimentation. Compost filter socks are specified on the E&SCP Drawings. CFS is an Antidegradation Best Available Combination of Technologies (ABACT) control usually used for EV and HQ watersheds. The Project is not located in an EV or HQ watershed and is not required anywhere within the LOD, however it will provide better sediment control in the areas around the temporary matting over wetlands. CFS will be installed in accordance with the Standard Detail Sheets. CFS locations are clearly depicted on the E&SCP Drawings.

Belted Silt Fence: Belted Silt Fence is a sediment barrier constructed from filter fabric attached to support stakes or poles. Silt fence will be installed to control runoff from HDD workspace, in accordance with the Standard Detail Sheets.

Erosion Control Blanket (ECB): ECB is a soil covering made from straw, coir, excelsior, or synthetic material used to minimize the potential for erosion on an exposed soil until a suitable vegetative cover can be

established. ECB will be placed in the Project area where a slope greater than 33 percent exists (unless located in an agricultural area).

Vertical Tracking Slope: Vertical Tracking Slopes will be performed on all disturbed slopes so that the track marks will be in parallel with the contour and encourages revegetation. Tracking will be performed prior to placement of any ECB.

Orange Safety Fence: Orange safety fence shall be installed at the borders of all streams, wetlands, and public roads to provide a visible barrier to construction equipment and activities.

Restoration: All improved areas disturbed by construction shall be restored to pre-construction contours and revegetated to a minimum uniform 70 percent perennial vegetative cover per Table 2.

Additional Requirements: Any additional requirements to adequately control E&SC pollution shall be the responsibility of the Contractor and shall be considered incidental to construction activities.

Temporary Wetland Crossings: Temporary wetland crossings should be constructed from materials that can be placed with a minimum of disturbance to the soil surface and completely removed when no longer needed. Stabilized crossing methods are shown on the Standard Detail Sheets. Timber mats (or equivalent) are required for wetland crossings regardless if there is standing water or saturated soil at the time of construction or the soil is firm enough to avoid rutting.

8.2 PERMANENT STRUCTURAL PRACTICES

Permanent Waterbars: Waterbars will be installed in accordance with the Standard Detail Sheets. No permanent waterbars are to be installed in agricultural or residential areas. Water bars on ROWs shall be left in place after permanent stabilization has been achieved. Maintenance of water bars shall be provided until ROW has achieved permanent stabilization.

Infiltration trench: Infiltration trench will be installed as shown on Permit Drawings and according to the Standard Detail Sheets. Infiltration trenches mitigate increased runoff due to increased impervious areas added to the Project by the proposed permanent access road. Disturbance to proposed infiltration trench construction areas will be minimized to the extent practicable during construction of the pipeline/facilities. The infiltration trench will be maintained to their full dimension and infiltration capacity for the life of the project. Refer to the PCSM/SR Plan Narrative for PCSM/SR BMP Section 8.0 for PCSM/SR Installation Sequence.

Trench Plugs: Trench plugs are specified on the E&SCP drawings to inhibit channelized flow which may occur in the trench when open during construction. Trench plugs should be installed in accordance with the trench plug detail contained within the Standard Details.

8.3 PERMANENT AND TEMPORARY VEGETATIVE PRACTICES

As indicated on the E&SCP drawings, disturbed areas are to be temporarily stabilized if construction activity is expected to cease more than 4 days. Upon completion of construction activity, disturbed areas are to be permanently stabilized.

Permanent Vegetative Stabilization: Immediately upon completion of final grading, disturbed areas will receive topsoil and permanent vegetative stabilization, defined as a minimum uniform 70 percent perennial vegetative cover. The disturbed areas will be permanently stabilized in accordance with Table 2. For disturbed areas, the topsoil will be segregated and replaced following construction. The vegetative restoration method will be determined with consultation with the landowner in cultivated or rotated cropland.

Temporary Vegetative Practices (Interim Stabilization) 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 four days, the site shall be immediately seeded, mulched, or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities. For an earth disturbance activity or any stage or phase of an activity to be considered temporarily stabilized, the disturbed areas shall be covered with one of the following: a minimum uniform coverage of mulch and seed, with a density capable of resisting accelerated E&S, or an acceptable BMP which temporarily minimizes accelerated erosion and sedimentation. Temporary stabilization will not occur on active vehicular travel ways, stockpiles, and ditch spoil areas unless earth disturbance activities are ceased in areas for four days or more. Refer to Table 3 for temporary seeding specifications.

Mulching The purpose of mulch is to reduce runoff and erosion, prevent surface compaction or crusting, conserve moisture, aid in establishing plant cover, and control weeds. Mulch shall be applied on any area subject to erosion, or which has unfavorable conditions for plant establishment and growth. The practice may be used alone or in conjunction with other structural and vegetative conservation practices, such as waterways, ponds, sediment traps or critical area planting. On sediment producing areas where the period of exposure is less than 2 months, mulch materials shall be applied according to the following guidelines:

1. Straw mulch shall be applied at the rate of 3 tons per acre. Chemically treated or salted straw is not acceptable as mulch.
2. Straw mulch shall be anchored immediately after application by at least 1 of the following methods.
 - a. "Crimped" into the soil using tractor drawn equipment (straight bladed coulters or similar). This method is limited to slopes no steeper than 3:1. Machinery should be operated on the contour. (Crimping of hay or straw by running it over with tracked machinery is not recommended)
 - b. Asphalt, either emulsified or cut-back, containing no solvents or other diluting agents toxic to plant or animal life, uniformly applied at the rate of 31 gallons per 1,000 square feet.
 - c. Synthetic binders (chemical binders) may be used as recommended by the manufacturer to anchor mulch provided sufficient documentation is provided to show that it is non-toxic to native plant and animal species.
 - d. Lightweight plastic, fiber, or paper nets may be stapled over the mulch according to the manufacturer's recommendations.

Mulched areas shall be checked weekly and after each runoff event (e.g., rain, snowmelt, etc.) for damage until the desired purpose of the mulching is achieved. Damaged portions of the mulch or tie-down material shall be repaired upon discovery.

Fertilizing Practices

1. Fertilization Rates: For permanent stabilization apply 10-20-20 at 1,000 pounds per acre and for temporary stabilization apply 10-10-10 at 500 pounds per acre, unless the soil test determines that the rate can be less than these minimums. Soil testing will occur on each property and land type to obtain site specific fertilization rates. Results will be provided to construction contractors and environmental inspectors at time of restoration.
2. Fertilizer and lime are not to be used in stream or wetland areas.

9.0 BMP INSTALLATION SEQUENCE NARRATIVE

9.1 GENERAL

Refer to the E&SCP drawings for the location of the proposed work and the associated BMPs. A generalized construction sequence is provided below. The construction sequence is intended to provide a general course of action in order to conform to the applicable regulatory agency requirements for temporary and permanent soil E&SCs. Necessary parts for proper and complete execution of work pertaining to this plan, whether specifically mentioned or not, are to be performed by the contractor. It is not intended that the drawings and this report show every detailed piece of material or equipment. The contractor shall comply with all requirements listed in this section. The contractor may be required to alter controls based on effectiveness of controls or differing conditions encountered in the field.

Construction may begin as early as February 2021 and conclude within six months. A General Sequence of Construction is presented below. It should be noted that wherever practical, construction activities will occur simultaneously. Some of these activities may occur before or after their position in the sequence without detriment. Any proposed major deviation from the approved construction sequencing must first be submitted by the permittee for review and approval by the PADEP.

9.2 CONSTRUCTION SEQUENCE

A pre-construction meeting, with a minimum of seven (7) days advance notice, is required prior to the start of any construction activity, including any earth disturbance activities such as clearing and grubbing). Texas Eastern shall invite all contractors, landowner(s), PADEP, County Conservation District(s) (CCD), and the E&SCP preparer must be invited to this meeting,.

A copy of the approved ESCGP-3, application package and other required permits (stamped, signed, and dated by the reviewing agency) must always be available at the Project site.

Pipeline construction is accomplished through a set of sequential operations: Surveying; Installation of BMPs; Clearing and Grubbing; Grading; Trenching; Pipe Stringing, Assembly and Welding; Lowering-In; Trench Backfill; HDD bore; Hydrostatic Testing and Final Tie-In; Final Grading; and Permanent Stabilization. The construction spread shall proceed along the pipeline right-of-way to complete these activities as one continuous operation in order to minimize the duration of earth disturbance. The full sequence of construction activities for this Project, from initial clearing through permanent stabilization (with seed and mulch), is not anticipated to exceed 6 months, weather permitting. If mechanical completion occurs in the late fall or winter, the right-of-way shall be stabilized for the winter as outlined in the sequence below. Permanent stabilization shall commence at the beginning of the next available growing period.

1. Invite PADEP and Local County Conservation Districts to a pre-construction meeting(s) with a minimum notice of seven days. See PADEP and CCD contact information below.
 - a. Pennsylvania Department of Environmental Protection, Regional Permit Coordination Office.
717-783-2300
 - b. Westmoreland County Conservation District; 724-837-5271
 - c. Indiana County Conservation District; 724-471-4751
2. Pre-Construction Activities: Prior to commencement of construction activities or any earth disturbance activity, locate and clearly mark (stake, flag) the pipeline centerline, the authorized LOD, approved access roads and construction entrances, and sensitive areas such as wetlands, streams, and areas proposed for infiltration.

3. Site Access: Prior to initiating construction activities, rock construction entrances (RCE) and the associated BMPs shall be installed per the details provided in this E&SCP. See plan drawings for specific locations.
4. BMP Installation: Install perimeter BMPs as specified in this E&SCP immediately following site access and prior to initiating mechanized land clearing, grubbing or any other earth disturbance activities. The clearing and grubbing associated with BMP installation shall be limited to the minimum necessary to complete installation of these BMPs.
5. Clearing and Grubbing: Perimeter BMPs shall be installed and functioning prior to initiating mechanized land clearing and grubbing, or any other earth disturbance activity. Clearing and grubbing operations shall be limited to the extent practical and shall not extend beyond the authorized LOD. Logs shall be placed in designated areas as authorized by landowner agreements or hauled offsite. Progressive clearing and grubbing operations, beginning in the location of BMPs and support areas, may proceed as long as installation of BMPs keeps pace with clearing and grubbing activities.
6. Access Roads: Temporary access roads will be installed and course base aggregate will be placed up to 75% of final grade, BMPs will be placed along the access road along with other controls as needed to prevent erosion and runoff from leaving the site while construction is active on the Right of Way. Previously existing E&SC/PCSM BMPs will be replaced/maintained as necessary (pertaining to their continued operation and maintenance). The permanent access road will be installed after construction activities are completed.
7. Topsoil Segregation: Strip and stockpile topsoil within the LOD, typically on the non-working side of the LOD. Maintain temporary soil stockpiles within existing BMPs. Topsoil stockpiles shall be immediately stabilized with temporary seed and mulch in accordance with the Seed Mixtures and Mulch for Revegetation table provided in this E&SCP. Topsoil stockpiles that will remain in place for over thirty days (30) shall be permanently stabilized per the Seed Mixtures and Mulch for Revegetation table provided in this E&SCP.
8. Grading: Site grading shall proceed in areas where BMPs have been installed as specified in this E&SCP and are functioning properly. Installation of diversion measures, including waterbars or other PADEP-approved diversions, shall be completed during the initial phases of the grading operations. The spacing of waterbars shall conform to the details provided in this E&SCP. The contractor shall install waterbars and other BMPs at the end of each working day.
9. Temporary Stabilization: Upon temporary cessation of an earth disturbance activity or any phase of an activity where the cessation of earth disturbance activities will exceed four (4) calendar days, the site shall be temporarily stabilized with seed and mulch (per the Seed Mixtures and Mulch for Revegetation table) or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities. Areas with slopes exceeding 3:1 shall be temporarily stabilized with hydraulically applied mulch, or equivalent.
10. Pipeline Installation: Pipeline installation, including trenching, stringing, pipe assembly and welding, lowering-in, and backfilling, shall proceed only in areas where the required BMPs have been installed and are functioning properly. Trench breakers shall be installed per standard spacing specification on E&SCPs once the pipeline is lowered into place. Work shall be planned to minimize the duration

of open trench and earth disturbance. When possible, trench spoil shall be placed on the upslope side of the right-of-way and serve as a temporary diversion for upslope runoff during pipeline installation. Maintain, repair and re-install BMPs as necessary for the duration of pipeline construction.

11. HDD Bore: The boring will be performed utilizing a directional or HDD boring machine. There will be earthwork associated with leveling the area for the setup of the boring machine. Appropriate sediment barriers shall be installed downslope of boring machine setup areas and all excavated material shall be placed in the designated area as indicated on the E&SCP Drawings. The boring, casing and connection of lines will be completed during the excavation for the boring machine setup. Any groundwater that needs to be pumped from the excavated trench will be removed by discharge through a pumped water filter bag to a vegetated upland area.
12. Hydrostatic Testing and Final Tie-In: Hydrostatic testing process shall be initiated after completion of backfilling operations, or prior to the installation of the HDD pullback section. Hydrostatic test water will be collected in tanks and disposed of off-site at an appropriate facility. The final tie-ins shall be completed and backfilled within five (5) calendar days after successful completion of hydrostatic testing, weather conditions permitting.
13. Final Grading and Permanent Stabilization: Initiate final grading immediately following completion of hydrostatic testing and final tie-ins. The LOD shall be returned as close to pre-construction grade and contours as practical. Permanent stabilization shall proceed upon completion of final grading. Permanent stabilization includes installation of permanent BMPs (i.e., water bars), amending topsoil (as necessary), seeding and mulching. Agricultural lands shall be restored in accordance with the landowner's specifications. Permanent stabilization is estimated to be complete within 60 calendar days weather permitting.
14. Winter Stabilization: If pipeline installation is completed during the late fall or winter, the site shall be temporarily stabilized with seed and mulch (per the Seed Mixtures and Mulch for Revegetation table). In general, permanent stabilization will not be conducted past October 15. Permanent stabilization may occur later than October 15 if weather conditions are favorable. If winter stabilization is required, permanent stabilization and plantings shall commence at the beginning of the next available growing period.
15. Install permanent access roads and associated stormwater BMPs in accordance with the Post Construction Stormwater Management (PCSM) Plans.
16. Post-Construction: Remove temporary BMPs in areas where 70% uniform, vegetative cover has been achieved and the site has been stabilized in accordance with this E&SCP and applicable permit conditions. Immediately stabilize any disturbance associated with removal of BMPs.

10.0 SUPPORTING CALCULATIONS AND MEASUREMENTS

E&SC BMPs, such as sediment barriers, RCEs, pumped water filter bags, waterbars, erosion control blankets, and trench plugs will be placed as appropriate to mitigate earth pollution resulting from disturbance activities. Calculations are not required for the proposed E&SC BMPs.

All compost filter socks (CFS) are assumed to be 12 or 18-inches in diameter. Please see CFS and belted silt fence Detail Drawing for dimensions used to size sediment barriers.

The Project proposes the construction of one new permanent gravel access road and one new graveled MLV. The installation of infiltration trench downgradient of the access road is expected to mitigate the runoff volume. Due to the linear nature of this Project and the negligible change in land use from pre to post-construction conditions, it is anticipated that there will be no increase in runoff volume and peak rate of discharge for the Project.

Please see Appendix A (Calculations) in Section 6 of the ESCGP-3 Application for calculations performed to size the infiltration trench adjacent to the permanent access road.

1 1.0 E&SC PLAN DRAWINGS

The Permit Drawings depict the proposed Project and BMPs along with applicable details provided in the Details Drawings of this section.

1 2.0 MAINTENANCE PROGRAM

Temporary and permanent BMPs will be used during construction activities to avoid and/or minimize adverse environmental effects of construction activities. A maintenance program that provides for routine inspection, as well as repair and replacement as necessary, is essential to effective and efficient operation of the proposed E&SC BMPs. Implementation of the following maintenance plan is a key component in achieving the intent of this E&SCP and minimizing accelerated erosion and sedimentation from the proposed earth disturbance. The permittee and any co-permittees shall be responsible for implementing the maintenance program presented on the Standard Details included in the E&SCP Drawings.

1 2.1 INSPECTION AND MAINTENANCE BMPs

E&SC BMP inspection will occur on a weekly basis and after each stormwater event. Until the site is stabilized, E&SC BMPs must be maintained properly. Preventative and corrective maintenance work, including clean-out, repair, replacement, regrading, reseeding, mulching, and renetting must be performed. If E&SC BMPs fail to perform as expected, replacement BMPs or modifications to those installed will be required.

The following inspection and maintenance practices will be used to maintain E&SCs on-site. After construction is completed and site has reached final grade and a minimum uniform 70 percent perennial vegetative cover has been achieved, all temporary BMPs will be removed and any land disturbed by removal will be permanently stabilized.

- Maintenance and inspection of sediment control facilities shall conform to PA Code Chapter 102 and 105 regulations.
- The Contractor shall make certain that all runoff is directed to the sediment control devices.
- E&SC measures will be in-place and inspected at the end of the workday in active construction areas. E&SC measures will also be inspected weekly and after each runoff event. Discharge locations shall be inspected to ascertain effectiveness of controls. Repair, maintenance, and additional control measures will be implemented immediately.

-
- Inspection reports and punch list must be emailed to the Texas Eastern compliance manager at the end of each workday.
 - Logs of sediment control inspection must be kept with inspectors' construction records and include date, time, and condition of BMPs and any necessary maintenance.
 - Inspections of all E&SC BMPs shall be conducted weekly and after each measurable rain event. Damaged BMPs will be repaired or replaced immediately upon discovering the damage and a written report must be submitted to the compliance manager with corrective action.
 - Compliance Managers must contact County Conservation District immediately to report any compliance issues.
 - Upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the environmental inspector will request implementation of appropriate BMPs to eliminate the potential for accelerated erosion and/or sediment pollution. ESCGP-3 Plan Sheets shall be redlined to record all BMP modifications and kept on-site.
 - If E&SCP BMPs are found to be inoperative or ineffective during an inspection, the CCD should be contacted within 24 hours, followed by the submission of a written noncompliance report to the CCD within 5 days of the initial inspection.
 - Areas not identified as having maintained permanent stabilization (minimum uniform 70 percent perennial vegetative cover) will require action to be taken, such as reseeding, removal of excessive mulch, or other stabilization methods. These areas shall be monitored until permanent stabilization has become established.
 - If during construction, concentrated flow areas form due to any storm event and any area becomes unstable, the area will be stabilized by installing rock filters or additional BMPs in the concentrated flow areas. Any required repairs or maintenance shall be made within 72 hours.
 - Waterbars are to be inspected weekly and after runoff events. Accumulated sediment shall be removed from waterbars. Worn and ineffective waterbars shall be replaced immediately after discovering the damage.
 - Sediment must be removed from sediment barriers once accumulation reaches one-half the above ground height of the barrier. Repair all undercutting or erosion of the toe anchor with compacted backfill material. Adhere to the manufacturer's recommendations for replacing sediment barriers due to weathering.
 - Any portion of the sediment barrier that is undermined or overtopped will be immediately repaired. If the section continues to be overtopped or undermined, a rock filter outlet will be installed to replace the section.
 - Sediment removed from sediment barriers shall be mixed in with the other waste soil on the construction site and properly disposed.
 - The pumping rate to filter bags (if required) for pumped water shall be one-half the maximum pumping rate recommended by the manufacturer. Filter bags will be inspected daily. When the filter bag is one-half full of sediment, it will be disposed of as outlined section in 13.1.

- All site entrance and exit points will be inspected on a daily basis for evidence of off-site tracking of mud. It is the responsibility of the Contractor to clean streets and roads of mud and/or dust and take whatever steps are necessary to keep the streets and roads in a clean and dust-free condition.
- Access road gravel thickness shall be consistently maintained. A stockpile shall be maintained on-site for this purpose.
- RCE thickness shall be consistently maintained to the specified dimensions. 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 RCE by 50-foot increments until condition is alleviated or install wash rack. Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts, or other drainage courses is not acceptable.
- When encountering blanket movement or a wash-out (i.e., visible riling/gullies) of erosion control blankets and hydraulically applied erosion control blankets used on slopes, these areas will be regraded, reseeded, and remulched per manufacturer's specifications within 4 calendar days of inspection.
- Revegetated areas shall be inspected weekly and after runoff events for bare spots, washouts, and healthy growth during construction. Identified bare spots and washouts shall be repaired within 24 hours upon inspection, weather permitting.
- All soil stockpiles that are to remain more than 4 days shall be seeded with temporary grass and mulched, as noted in the seeding specification on the construction drawings. In no case should an area exceeding 15,000 square feet (which is to be stabilized by vegetation) reach final grade without being seeded and mulched.
- All sediment control measures shall remain in place until the disturbed areas are stabilized and a minimum uniform 70 percent perennial vegetative cover is established.
- Any slope on the Project site that appears suspect to slope slippage requires a geotechnical specialist to inspect the area immediately. If conditions warrant, mitigating geotechnical design features can be employed at the discretion of the construction manager. Slip prone slopes have been identified prior to construction, see Geotechnical Report.
- In order to facilitate restoration of native vegetation, grading and stump removal conducted during construction shall be limited to the trenchline through wetland and riparian areas, except as required to create a safe and level workspace.
- Routine vegetation mowing or clearing of the permanent right-of-way in wetlands should not exceed a width of 50 feet, centered on the pipeline. To facilitate periodic inspection and maintenance activities, a maximum 75-foot-wide corridor centered on the pipeline may be cleared at a frequency necessary to maintain the 50-foot corridor in an herbaceous state. In addition, trees within 25 feet of the pipeline with roots that could compromise the integrity of pipeline coating may be selectively cut and removed from the permanent right-of-way. The remaining portion of the right-of-way shall be allowed to permanently re-vegetate with native plant species. Do not conduct any routine vegetation mowing or clearing in wetlands or riparian buffers located between HDD entry and exit points.

12.2 INSPECTION AND MAINTENANCE SCHEDULE

Temporary Erosion and Sediment Controls - Inspection and Maintenance Schedule		
BMP	Inspection Frequency	Maintenance to be Performed
Waterbars	Weekly and After Runoff Events	Accumulated sediment shall be removed from waterbars. Worn and ineffective waterbars shall be replaced.
Sediment Barriers (Compost Filter Sock, Silt Fence)	Weekly and After Runoff Events	- Sediment must be removed from sediment barriers once accumulation reaches one-half the above ground height of the barrier. Repair all undercutting of erosion of the toe anchor with compacted backfill material. Adhere to the manufacturer's recommendations for replacing sediment barriers due to weathering. - Any portion of the sediment barrier that is undermined or overtopped will be immediately repaired. If the section continues to be overtopped or undermined, a rock filter outlet will be installed to replace the section. - Sediment removed from sediment barriers shall be mixed in with the other waste soil on the construction site and property disposed. - Damaged or deteriorated portions of the wood chip filter berm shall be replaced immediately upon inspection.
Filter Bags	Daily	When the filter bag is one-half full of sediment, it will be disposed of as outlined in the E&SCP.
Rock Construction Entrance (RCE)	Consistently Maintained	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, sewers, culverts or other drainage courses is not acceptable. Replace any damaged culvert pipe within 8 hours of discovery. Damaged culvert pipe includes: crushed ends, out of round pipe, separation, cracks and voids in the pipe.
Revegetated Areas	Weekly and After Runoff Events	Revegetated areas shall be inspected for bare spots, washouts, and healthy growth during the construction. Identified bare spots and washouts shall be repaired within 24 hours upon inspection, weather permitting. Revegetated areas will be maintained over the life of the project, or until a uniform 70% cover regrowth has been achieved.
Infiltration Trench	Weekly and After Runoff Events	Infiltration trench shall be maintained to full dimension and infiltration capacity for the life of the project requiring the PCSM BMP. If at any time the capacity of the infiltration trench has been reduced below design capacity, repairs will be conducted. See PCSM Plan Narrative and Detail Sheets for Maintenance.

Temporary Erosion and Sediment Controls - Inspection and Maintenance Schedule		
BMP	Inspection Frequency	Maintenance to be Performed
Interim Stabilization	Weekly and After Runoff Events	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 four days, the site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities. For an earth disturbance activity or any stage or phase of an activity to be considered temporarily stabilized, the disturbed areas shall be covered with 1 of the following: a minimum uniform coverage of mulch and seed, with a density capable of resisting accelerated E&S, or an acceptable BMP which temporarily minimizes accelerated E&S. Temporary stabilization will not occur on active vehicular travel ways, stockpiles, and ditch spoil areas unless earth disturbance activities are ceased in areas for 4 days or more. Refer to Table 3 for temporary seeding specifications.
Notes: 1. Damaged BMPs will be repaired or replaced as soon as practicable, but no more than 72 hours after discovering the damage and a written report must be submitted to the compliance specialist with corrective action. 2. Inspection reports and punch list must be emailed to the compliance specialist at the end of the work day. 3. Logs of sediment control inspection must be kept with the inspectors' construction records and include date, time and condition of BMPs and any necessary maintenance. 4. Compliance Managers must contact County Conservation District to report any compliance issues.		

13.0 MATERIAL RECYCLING AND DISPOSAL

13.1 MATERIAL WASTE HANDLING AND RECYCLING

The contractor is required to remove construction wastes from the site and dispose per PADEP regulations. No earthen borrow or waste is anticipated with the exception of imported rock aggregate where required (e.g, rock construction entrances). Excess material brought into the site areas to facilitate construction access will be completely removed prior to rough grading and final surface stabilization. Expected construction wastes will consist of packaging material and sediment cleaned from BMPs. Packaging from the materials brought on site will be disposed of by a licensed hauler. Sediment removed from BMPs will either be spread in a protected area to dry and then recycled as fill material or disposed of off-site. Garbage must be properly disposed of at a permitted facility. The scrap material must be removed from the site and disposed of or recycled at a properly licensed/permitted facility. The Contractor shall be responsible to assure that all materials are handled and disposed of in accordance with applicable laws, rules, and regulations, including, but not limited to, those issued by the Environmental Protection Agency, PADEP, Local County Conservation District, and Occupational Safety and Health Administration (OSHA).

Off-site spoil and/or borrow sites greater than 1-acre must be operated under a current NPDES Permit.

A Preparedness, Prevention, and Contingency (PPC) Plan for Construction Activities has been created for this Project. See Appendix A of the ESCGP-3 Application.

14.0 NATURALLY OCCURRING GEOLOGIC FORMATIONS AND SOIL CONDITIONS

The project is situated within high volatile vituminous coal fields as indicated on Pennsylvania Bureau of Topographic and Geologic Survey Map 11 – Distribution of Pennsylvania Coals (2000). The project is situated within the Conemaugh Group in the Appalachian Plateau Province, which has the potential to produce acid drainage due to the presence of sulfide minerals as indicated in Pennsylvania Bureau of Topographic and Geologic Survey Open File Miscellaneous Investigation OFMI-05-01.1, revised March 7, 2006. The actual occurrence of acid mine drainage depends on numerous factors, including rock type, mineralogy, geochemistry, geologic structure (e.g., fractures, joints, and faults), changing the water table, surface and sub-surface hydrology, extent of geologic weathering, and depositional environments.

According to the publication *Landslides in Pennsylvania*, the Project is located in a region that has a high to moderate landslide susceptibility (Delano and Wllshusen, 2001). These zones are defined as areas where landslides have occurred in the past. Landslides in this part of Pennsylvania typically occur during times of heavy precipitation or after alteration of surface conditions by construction.

Mitigation of Potential Geologic Hazards: The primary mitigation of the above noted potential geologic hazard will be avoidance. The maximum depth of excavation for the proposed project is 15 feet below existing grade, with the majority of the proposed earth moving activities occurring at much shallower depths. At these relatively shallow depths, it is unlikely that the proposed construction activities will encounter the noted bedrock with potentially significant acid-producing sulfide minerals. If the coal layers or rocks with acid producing minerals are encountered during construction activities, it would be a small amount.

Enbridge project specifications will require on-site presence of an individual trained and knowledgeable in the identification of bedrock with potentially significant acid-producing sulfide minerals. In the event this material is encountered during excavation for the proposed facility, the following mitigation measures are to be followed:

1. Material with the potential to provide significant acid-producing sulfide minerals encountered during pad construction is not to be used as fill material on-site. This material shall be exported off-site and disposed of in the proper manner.
2. Material with the potential to provide significant acid-producing sulfide minerals exposed during pad construction is to be addressed through site specific analysis and design of appropriate mitigation measures. Possible mitigation measures for small quantities could be blending the materials with acid-neutralizing materials, such as limestone; covering the material with soil or glacial till and layering with lime or limestone.

15.0 THERMAL IMPACTS

The proposed project was analyzed for potential thermal impacts associated with the planned activities and how potential impacts could be avoided, minimized, or mitigated. Thermal impacts resulting from activities similar to the proposed project are primarily due to the negative impacts of increased impervious area and the disturbance of vegetative cover. Thermal impacts associated with this Project will be avoided to the maximum extent possible and minimal permanent changes in land cover are being proposed. The following provisions

related to thermal impacts are included in the E&SC Drawings:

- Use of BMPs to allow runoff from the Project area to be reintroduced as sheet flow.
- Immediate revegetation (or mulch in non-germinating season) when earth disturbing activities are complete and no disturbance within 50 feet of streams.
- Limit removal of vegetation, especially tree cover, to only that necessary for construction.
- Minimizing the LOD and the limit of tree clearing to the minimum area absolutely necessary to construct the necessary facilities will maintain existing vegetative cover and maintain the infiltration capacity of undisturbed areas to the maximum extent practicable.
- Minimizing impervious surfaces.
- Maximizing the use of vegetated areas to cool runoff prior to discharge.
- Maintaining canopy cover that limit ground surface exposure to direct sunlight.
- Use of HDD for the Conemaugh River crossing will limit vegetation disturbance and exposure of the ground surface to sunlight especially in riparian areas.
- The Project will have one permanent access road and graveled MLV. Runoff from the permanent gravel areas will be collected as part of the Post-Construction Stormwater Management (PCSM) Plan. Runoff will be routed to a Stormwater BMP to reduce potential thermal impacts downslope of the Project site.

The permanent pipeline right-of-way may be mowed periodically and woody vegetation may be trimmed to allow safe pipeline operation. Some tree cover may be permanently removed in wooded areas. In the long term, it is anticipated the canopy from adjacent woodlands will expand over the pipeline right-of-way to compensate for lost shade.

16.0 E&SCP AND PCSM/SR PLAN CONSISTENCY

Following completion of pipeline installation and trench backfilling, the area shall be returned to the general grade present prior to pipeline installation in order to maintain pre-construction drainage patterns. Temporarily disturbed areas shall be restored to a vegetated condition in the post-construction phase. Increased runoff from the permanent access road and gravel meter site will be mitigated by an infiltration trench to be placed as shown on Permit Drawings and according to the Standard Detail Sheets. Long-term maintenance of the areas to be restored is not expected; however, areas not achieving a minimum uniform 70 percent perennial vegetative cover will be corrected (i.e., additional amendments, reseeding, etc.) as needed within the permit period. Sediment collected by erosion controls during site restoration activities will be spread in a protected area, allowed to dry, and recycled on-site.

17.0 RIPARIAN FOREST BUFFERS

Riparian buffers are an area of permanent vegetation situated along any surface water(s). When this vegetation is predominantly native trees, shrubs, and forbs that are maintained in a natural state or sustainably managed to protect and enhance water quality, it is considered a riparian forest buffer. AECOM completed an

investigation of the project area to identify existing riparian forest buffers. No existing riparian buffers were identified within the proposed project area as the riparian area associated with this Project is within existing ROW.

18.0 ANTIDEGREDATION REQUIREMENTS

The Project is not located within a special protection watershed, as classified by PA Code Title 25 Chapter 93, therefore ABACT controls are not required. The Project is of a temporary nature, and the site will be fully restored to its preexisting condition during the term of the permit per Chapter 102.14 (d)(2)(iv), with the exception of a permanent access road and MLV.

Appropriate E&SC BMPs are proposed to reduce point source discharges occurring during construction and through stabilization. The area being disturbed for the Project will be the minimum amount necessary to perform the construction of the pipeline. Pipeline construction will be completed in a staged approach in order to limit the extent and duration of disturbance.

19.1 EMERGENCY CONTACT INFORMATION

Pipeline and Operator Information and Phone Numbers	Key Emergency Phone Numbers
<u>Pipeline Name:</u> Penn-Jersey Pipeline System, Line 12 <u>Pipeline Location:</u> Begin Latitude: 40°27'17.50" N Begin Longitude: 79°18'8.28"W End Latitude: 40°27'26.52" N End Longitude: 79°17'40.52"W <u>Operator:</u> Texas Eastern Transmission, LP <u>On-Site Drilling Specialist:</u> TBD <u>Primary:</u> Leo Feist, Construction Manager Cell: <u>Secondary:</u> Office: <u>Spill Response Contractor:</u> <u>Chief Inspector:</u> TBD (Add phone number)	Note: Some cell phones do not support 911 calls. Phone should be tested on location prior to operations. <u>Pennsylvania Department of Environmental Protection Regional Permit Coordination Office:</u> 717-783-2300 <u>USCG/National Response Center (NRC):</u> 800-424-8802 <u>Westmoreland County Emergency Management Agency:</u> 570-296-1911 <u>Indiana County Emergency Management Agency:</u> 724-394-1428 <u>Fire, Ambulance, Police:</u> 9-1-1 <u>The Pennsylvania Emergency Management Agency:</u> 800-424-7362 or 717-651-2001 <u>Pennsylvania Game Commission:</u> 724-238-9523 <u>Pennsylvania Fish and Boat Commission:</u> 814-445-3497 <u>Chemical Transport Emergency Center:</u> 800-424-9300 <u>Regional Poison Information Center:</u> 800-222-1222

19.2 ENVIRONMENTAL INCIDENT REPORT

Location (Facility/Specific Location):	
Date Incident Occurred:	
Time Incident Occurred:	
Type of Incident (Check all that apply):	
☐ Contaminated Ground Water/Soil ☐ Fish Kill ☐ Hazardous Substance Spill/Release ☐ Migratory Bird ☐ Other _____	☐ Oil Spill ☐ PCB Spill ☐ Storage Tank (leak or other problem) ☐ Wildlife Concern
If Spill:	
Type of Substance:	
Origin of Substance:	
Amount (if known):	
Spill On (floor, ground, water):	
Oil Spill to Water or Storm Drain (If any selection is entered, written notice to EPA is due within 60 days)	☐ Spill greater than 1000 gallons ☐ Two spills > 42 gal. within a 12 month period Date of Previous Spill _____
Description of Incident (include cause, if known, specific location, amount, duration, and impact on environment)	

Immediate Action/Cleanup Procedures			
Action Taken or Planned to Prevent Recurrence			
Notifications Made			
	Name	Date	Time
Emergency Response Coordinator			
Other facility Personnel			
Environmental Services			
State Agency			
National Response Center			
Other (i.e., Local Agency)			
Regulatory Personnel on the Scene (Name and Agency)			
Site Contact for Additional Information (Name and Title)	Telephone Number (With Area Code)		
Incident Reported By (Name and Title)	Telephone Number (With Area Code)		

19.0 REFERENCES

- Delano, H. L., and Wilshusen, J. P., 2001, Landslides in Pennsylvania: Pennsylvania Geological Survey, 4th ser., Edu-cational Series 9, 34 p. Accessed online at http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_014592.pdf on May 8, 2020.
- Pennsylvania Bureau of Topographic and Geologic Survey. 2000. *Map 11 – Distribution of Pennsylvania Coals*, 3rd Edition. Accessed at http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_016203.pdf on April 6, 2020.
- Pennsylvania Bureau of Topographic and Geologic Survey. 2006. Open File Miscellaneous Investigation OFMI-05-01.1, revised March 7, 2006. Accessed at www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_015857.zip on April 6, 2020.
- Pennsylvania Department of Conservation and Natural Resources, Bureau of Topographic Geologic Survey. 2006. *PAMAP Program LIDAR Processing/Contour Enhancement Lines of Pennsylvania*. <http://www.pasda.psu.edu/default.asp>.
- Pennsylvania Department of Environmental Protection, Office of Water Management. 2012. *Erosion and Sediment Pollution Control Best Management Practices Manual*. Bureau of Watershed Management, Division of Waterways, Wetlands and Erosion Control. March 2012.
- Pennsylvania Department of Environmental Protection (PADEP). 2000. *Avoiding Common Erosion and Sediment Control Plan Deficiencies, Pipeline and Utility Line Projects*. July 2000.
- PADEP. 2001. *Underground Utility Line Construction, Typical Erosion and Sediment Controls*.
- PADEP. 2018. *2018 Pennsylvania Integrated Water Quality Monitoring and Assessment Report*. Accessed at <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-13014> on April 6, 2020.
- PADEP. 2020. *Statewide Existing Use Classifications*. Last Revised January 13, 2020. <http://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Existing%20Use/EU%20table%20list.pdf> on April 6, 2020.
- Pennsylvania Fish and Boat Commission. 2020a. *Adult Trout Stocking by County*. Accessed at http://fbweb.pa.gov/stocking/TroutStockingDetails_GIS.aspx on April 6, 2020.
- PFBC. 2020b. *2020 Pennsylvania Fishing Summary: Summary of Fishing Regulations and Laws – Stocked Trout Waters*. Accessed at <http://pfbc.pa.gov/fishpub/summaryad/2020summaryComplete.pdf> on April 6, 2020.

PFBC. 2020c. *Pennsylvania Wild Trout Waters (Natural Reproduction) – February 2020*. Accessed at http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/trout_repro.pdf on April 6, 2020.

United States Department of Agriculture, National Resources Conservation Service, 2008. *Soil Survey Geographic (SSURGO) Database for Indiana County, Pennsylvania*. Available at <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.

United States Department of Agriculture, National Resources Conservation Service, 2008. *Soil Survey Geographic (SSURGO) Database for Westmoreland County, Pennsylvania*. Available at <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.

U.S. Fish and Wildlife Service (USFWS) 2018. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Accessed at <http://www.fws.gov/wetlands> on April 6, 2020.

United States Geological Survey. 2020. Blairsville, Pennsylvania Topographic Quadrangle (7.5-Minute Series) (1:24,000).

TABLES

Table 1

SOIL SERIES AND LIMITATIONS

Soil Map Unit	Description	Erodible	Cut Banks Cave	Corrosive to Concrete or Steel	High Water Table	Low Strength	Piping	Poor Topsoil	Hydric
AhC	Allegheny silt loam, 8 to 15 percent slopes	X	X	C	-	X	X	X	X
GoF	Gilpin-Rock outcrop complex, 45 to 100 percent slopes	X	X	C	-	X	X	X	X
MoA	Monongahela silt loam, 0 to 3 percent slopes	X	X	C/S	X	X	X	-	X
MoB	Monongahela silt loam, 3 to 8 percent slopes	X	X	C/S	X	X	X	-	X
MoC	Monongahela silt loam, 8 to 15 percent slopes	X	X	C/S	X	X	X	-	X
W	Water	-	-	-	-	-	-	-	-
WeA	Weinbach silt loam, 0 to 2 percent slopes	X	X	C/S	X	X	X	X	X

Source: Appendix E, Table E-1, PADEP, *Erosions and Sediment Control Best Management Practice Manual*, Technical Guidance Number 363-2134-008.

Table 2

SEED MIXTURES AND MULCH FOR REVEGETATION

UPLAND AREAS

Lime 4.0 tons/acre

Fertilizer 1000 lbs./acre (10-20-20)

Mulch (Wheat Straw) 3.0 tons/acre

Upland Seed Mix 75 lbs./acre Pure Live Seed (PLS)

Kentucky Bluegrass	20%
Red Fescue ¹	20%
Kentucky 31 Tall Fescue 1 1	5%
Redtop	10%
Perennial ryegrass	20%
White clover	5%
Birdsfoot Trefoil (Minimum 20% hard seed)	10%

¹ Fescue must be endophyte-free.

Pasture Mix 20 lbs./acre PLS

(For use only in disturbed pasture areas with landowner's permission.)

Kentucky Bluegrass	31%
Medium Red clover	26%
Norcen Trefoil	17%
Poly Perennial Rye	26%

Recommended Seeding Dates

(For the establishment of temporary or permanent vegetation.)

Spring: March 15 - May 30

Fall: August 1 - October 15

WINTER STABILIZATION

If restoration does not occur prior to October 15, seed the construction ROW with 1.5 bushels per acre of winter rye or similar variety of rye as requested by the landowner. Mulch the construction ROW at 3.0 tons per acre with wheat straw, including areas adjacent to streams and wetland crossings. Seed segregated topsoil piles with winter rye and mulch at a rate of 3.0 tons per acre.

WETLAND AREAS

DO NOT USE LIME OR FERTILIZER !!!

Do not use fertilizer, lime, or mulch within wetlands unless required in writing by the appropriate federal or state agency (as identified in the Clearance Package/Permit Book). Mulch consists of weed-free straw, wood fiber hydromulch or some functional equivalent as approved by the EI and Chief Inspector. When used, apply mulch (wheat straw) at a rate of 3.0 tons/acre.

Wetland Seed Mix

Annual Ryegrass	40 lbs./acre PLS
-----------------	------------------

Notes:

- 1 All seed is pure live seed (PLS).

Appendix D

Wetland and Waterbody Report



AECOM
Foster Plaza 6
681 Andersen Drive, Suite 400
Pittsburgh, PA 15220-2749
www.aecom.com

412 503 4700 tel
412 503 4701 fax

May 5, 2020

William Brett
Texas Eastern Transmission, LP
890 Winter Street, Suite 300
Waltham, MA 02451

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

Dear Mr. Brett:

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

BACKGROUND

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

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

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

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

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

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

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

Table 1. Study Area Soil Map Units

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

METHODOLOGY

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

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

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

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

RESULTS

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

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

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

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

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

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

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

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

- **Wetland W-CMS-007 (PEM):** This PEM wetland originated on a hillside where several spring seeps emerged and extended outside of the Study Area to the southeast. The delineated portion of this resource was 0.13 acre in size. The primary indicators of hydrology observed were Surface Water (A1), High Water Table (A2), Saturation (A3), and Oxidized Rhizospheres along Living Roots (C3). The dominant herbaceous species were *Fallopia japonica*, *Juncus tenuis*, and *Carex crinita*. The soil texture at this location was loamy clay and met the criteria for hydric soil field indicator Loamy Gleyed Matrix (F2).
- **Watercourse S-JLK-037 (PER):** This PER watercourse was identified as the Conemaugh River and flowed adjacent to wetland W-CMS-016. The watercourse had a top width and overall channel depth of approximately 185 feet and ten feet, respectively. The morphology of watercourse S-JLK-037 consisted entirely of a pool feature. A qualitative review of the substrate for benthic macroinvertebrates was conducted and Ephemeroptera, Plecoptera, and Trichoptera taxa were observed.

SUMMARY

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

STATEMENT OF LIMITATIONS

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

SIGNATURES

This report was prepared by:

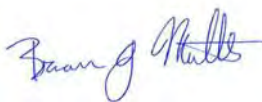
AECOM



Josh Singleton
Environmental Scientist

And reviewed by:

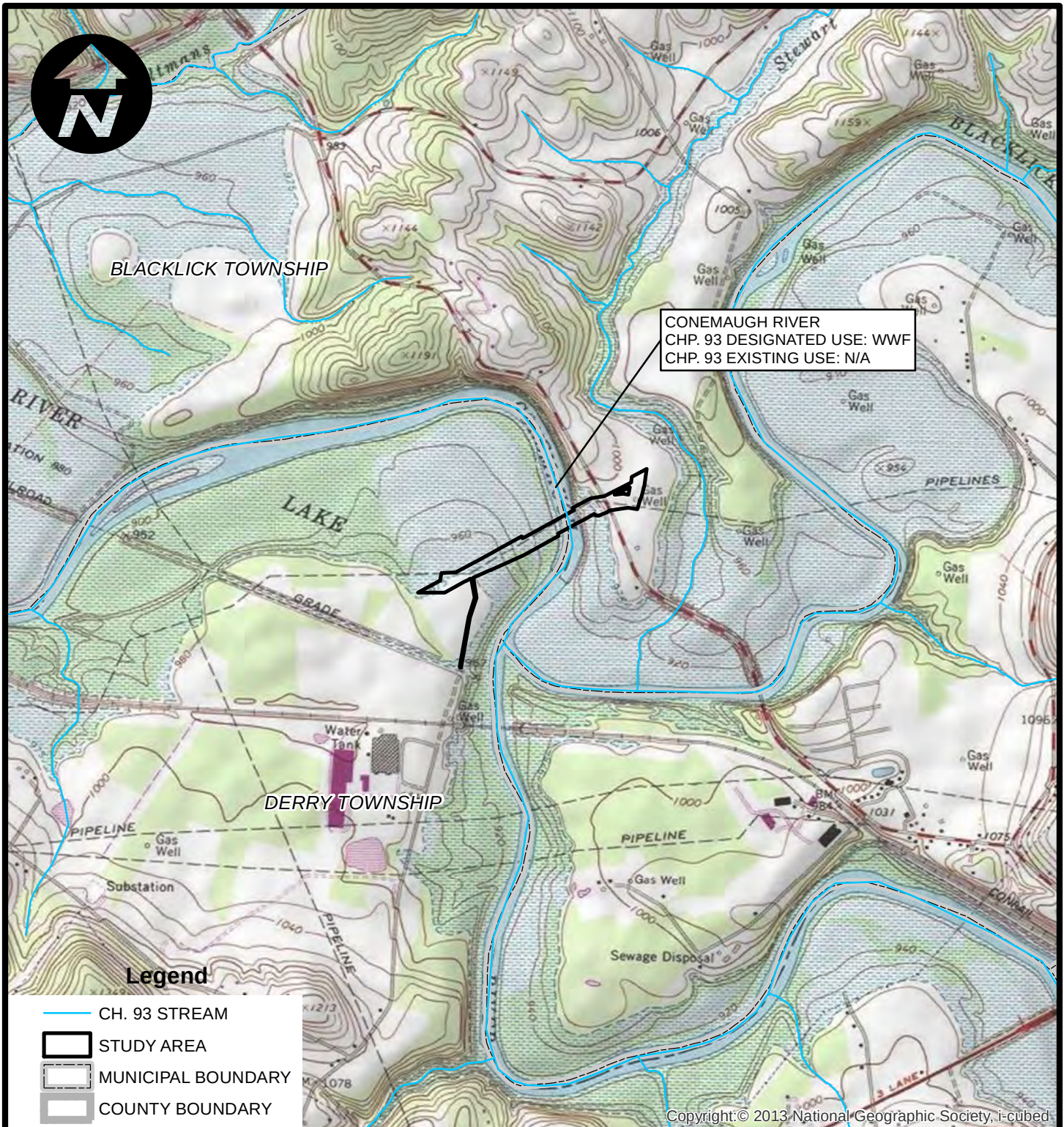
AECOM



Brian J. Miller
Senior Ecologist

REFERENCES

- Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition*. EPA 841-B-99-002. U.S. Environmental Protection Agency, Office of Water, Washington District of Columbia.
- Clean Water Act of 1972, 33 U.S.C. § 1251 et seq. (2002). Accessed at <https://www.epa.gov/sites/production/files/2017-08/documents/federal-water-pollution-control-act-508full.pdf> on April 6, 2020.
- Commonwealth of Pennsylvania. 2020a. The Pennsylvania Code, Title 25: Environmental Protection, Chapter 93: Water Quality Standards, Section 93.9: Designated Water Uses and Water Quality Criteria. Accessed at <http://www.pacode.com/secure/browse.asp> on April 6, 2020.
- Commonwealth of Pennsylvania. 2020b. The Pennsylvania Code, Title 25: Environmental Protection, Chapter 105: Dam Safety and Waterway Management. Accessed at <http://www.pacode.com/secure/browse.asp> on April 6, 2020.
- Cowardin, L.M., Carter, V., Golet, F.C., LaRoe, E.T. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*, Report No. FWS/OBL-97/31. U. S. Department of the Interior, Fish and Wildlife Service, Washington, District of Columbia.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Kollmorgen Instruments Corporation. 1994. *Munsell Soil Color Charts*. Macbeth Division, New Windsor, New York.
- National Geographic Society. 2013. Seamless Layer 2013 (Topo Source: Seamless Digital Raster Graphic-N.P.S. Natural Physical Map & U.S.G.S. Topographic Map i-cubed USGS Quad: Blairsville, PA).
- Natural Resources Conservation Service (NRCS). 2018. Soil Survey Geographic (SSURGO) Databases for Indiana and Westmoreland Counties, Pennsylvania. Accessed at <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm> on April 6, 2020.
- Pennsylvania Department of Environmental Protection (PADEP). 2016. *2016 Pennsylvania Integrated Water Quality Monitoring and Assessment Report*. Accessed at <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-13014> on April 6, 2020.
- PADEP. 2020. *Statewide Existing Use Classifications*. Last Revised January 13, 2020. <http://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Existing%20Use/EU%20table%20list.pdf> on April 6, 2020.
- Pennsylvania Fish and Boat Commission. 2020a. *Adult Trout Stocking by County*. Accessed at http://fbweb.pa.gov/stocking/TroutStockingDetails_GIS.aspx on April 6, 2020.
- PFBC. 2020b. *2020 Pennsylvania Fishing Summary: Summary of Fishing Regulations and Laws – Stocked Trout Waters*. Accessed at <http://pfbc.pa.gov/fishpub/summaryad/2020summaryComplete.pdf> on April 6, 2020.
- PFBC. 2020c. *Pennsylvania Wild Trout Waters (Natural Reproduction) – February 2020*. Accessed at http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/trout_repro.pdf on April 6, 2020.
- United States Army Corps of Engineers (USACE). 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0*, ed. J. F. Berkowitz, J. S. Wakeley, R. W. Lichvar, C. V. Noble. ERDC/EL TR-12-9. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi.
- U.S. Fish and Wildlife Service (USFWS) 2018. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Accessed at <http://www.fws.gov/wetlands> on April 6, 2020.



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

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

AECOM

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

ENBRIDGE

TEXAS EASTERN TRANSMISSION, LP

PREPARED BY:
JAS

CHECKED BY:
MAB

APPROVED BY:
SLH

DATE:
5/5/2020

SCALE:
1" = 2,000'

PROJECT NO.
60594173

DRAWING NO.

FIGURE 1
 LOCATION MAP

2020 INTEGRITY PROGRAM
 CONEMAUGH RIVER CROSSING PROJECT
 INDIANA AND WESTMORELAND COUNTIES, PENNSYLVANIA

APPENDIX A – FIELD DATA FORMS

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20
Applicant/Owner: Enbridge **State:** PA **Sampling Point:** W-BJM-011 PEM
Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** S T Derry R
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.454165 **Long.:** -79.30405 **Datum:** NAD83
Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , **Soil** ☒ , **or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☒ , **Soil** ☐ , **or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
--	--

Remarks:

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

Hydrology

Wetland Hydrology Indicators:

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

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

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): <u>2</u>	Wetland Hydrology Present? Yes ☒ No ☐
Water Table Present?	Yes ☒ No ☐	Depth (inches): <u>0</u>	
Saturation Present? (includes capillary fringe)	Yes ☒ No ☐	Depth (inches): <u>0</u>	

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

NA

Remarks:

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

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

Sampling Point: W-BJM-011 PEM

Tree Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
		0	= Total Cover	
Sapling-Sapling/Shrub Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
		0	= Total Cover	
Shrub Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
		0	= Total Cover	
Herb Stratum	(Plot size: <u>5' radius</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<u>Juncus effusus</u>	30	☒ 31.6%	FACW
2.	<u>Scirpus cyperinus</u>	25	☒ 26.3%	FACW
3.	<u>Typha angustifolia</u>	20	☒ 21.1%	OBL
4.	<u>Andropogon virginicus</u>	10	☐ 10.5%	FACU
5.	<u>Juncus tenuis</u>	10	☐ 10.5%	FAC
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
11.		0	☐ 0.0%	
12.		0	☐ 0.0%	
		95	= Total Cover	
Woody Vine Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
		0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of: 20 x 1 = 20

FACW species 55 x 2 = 110

FAC species 10 x 3 = 30

FACU species 10 x 4 = 40

UPL species 0 x 5 = 0

Column Totals: 95 (A) 200 (B)

Prevalence Index = B/A = 2.105

Hydrophytic Vegetation Indicators:

☒ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

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

¹Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W-BJM-011 PEM

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

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

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10) (LRR N)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)

- ☐ Dark Surface (S7)
☐ Polyvalue Below Surface (S8) (MLRA 147,148)
☐ Thin Dark Surface (S9) (MLRA 147, 148)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
☐ Umbric Surface (F13) (MLRA 136, 122)
☐ Piedmont Floodplain Soils (F19) (MLRA 148)
☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

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

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20
Applicant/Owner: Enbridge **State:** PA **Sampling Point:** W-BJM-011 PSS
Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** S T Derry R
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.453972 **Long.:** -79.303652 **Datum:** NAD83
Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , **Soil** ☐ , **or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☒ , **Soil** ☐ , **or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
--	--

Remarks:

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

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one required; check all that apply)		
☒ Surface Water (A1)	☐ True Aquatic Plants (B14)	☐ Surface Soil Cracks (B6)
☒ High Water Table (A2)	☐ Hydrogen Sulfide Odor (C1)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Drainage Patterns (B10)
☐ Water Marks (B1)	☐ Presence of Reduced Iron (C4)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Dry Season Water Table (C2)
☐ Drift deposits (B3)	☐ Thin Muck Surface (C7)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Other (Explain in Remarks)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)		☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)		☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)		☐ Shallow Aquitard (D3)
☐ Aquatic Fauna (B13)		☐ Microtopographic Relief (D4)
		☒ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☒ No ☐	Depth (inches): <u>1</u>	Wetland Hydrology Present? Yes ☒ No ☐
Water Table Present?	Yes ☒ No ☐	Depth (inches): <u>0</u>	
Saturation Present? (includes capillary fringe)	Yes ☒ No ☐	Depth (inches): <u>0</u>	

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

NA

Remarks:

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

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

Sampling Point: W-BJM-011 PSS

Tree Stratum	(Plot size: <u>30'</u> radius)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<u>Platanus occidentalis</u>	15	☒ 100.0%	FACW
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
		15	= Total Cover	
Sapling-Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)				
1.	<u>Cornus racemosa</u>	15	☒ 60.0%	FAC
2.	<u>Platanus occidentalis</u>	10	☒ 40.0%	FACW
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
		25	= Total Cover	
Shrub Stratum (Plot size: <u>15'</u> radius)				
1.	<u>Rubus occidentalis</u>	15	☒ 60.0%	UPL
2.	<u>Rosa multiflora</u>	10	☒ 40.0%	FACU
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
		25	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)				
1.	<u>Scirpus cyperinus</u>	30	☒ 31.6%	FACW
2.	<u>Dichanthelium clandestinum</u>	25	☒ 26.3%	FAC
3.	<u>Panicum virgatum</u>	15	☐ 15.8%	FAC
4.	<u>Solidago ruqosa</u>	15	☐ 15.8%	FAC
5.	<u>Juncus effusus</u>	10	☐ 10.5%	FACW
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
11.		0	☐ 0.0%	
12.		0	☐ 0.0%	
		95	= Total Cover	
Woody Vine Stratum (Plot size: <u>None</u>)				
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
		0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of: 15 Multiply by: 47.6

OBL species 0 x 1 = 0

FACW species 65 x 2 = 130

FAC species 70 x 3 = 210

FACU species 10 x 4 = 40

UPL species 15 x 5 = 75

Column Totals: 160 (A) 455 (B)

Prevalence Index = B/A = 2.844

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

*Vegetation was naturally problematic due to winter conditions.

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

Soil

Sampling Point: W-BJM-011 PSS

[illegible]

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20
Applicant/Owner: Enbridge **State:** PA **Sampling Point:** W-BJM-010 PEM
Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** S T Derry R
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.454622 **Long.:** -79.302811 **Datum:** NAD83
Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒ **, Soil** ☒ **, or Hydrology** ☒ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☒ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
--	--

Remarks:

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

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one required; check all that apply)		
☒ Surface Water (A1)	☐ True Aquatic Plants (B14)	☐ Surface Soil Cracks (B6)
☒ High Water Table (A2)	☐ Hydrogen Sulfide Odor (C1)	☐ Sparsely Vegetated Concave Surface (B8)
☒ Saturation (A3)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Drainage Patterns (B10)
☐ Water Marks (B1)	☐ Presence of Reduced Iron (C4)	☐ Moss Trim Lines (B16)
☐ Sediment Deposits (B2)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Dry Season Water Table (C2)
☐ Drift deposits (B3)	☐ Thin Muck Surface (C7)	☐ Crayfish Burrows (C8)
☐ Algal Mat or Crust (B4)	☐ Other (Explain in Remarks)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Iron Deposits (B5)		☐ Stunted or Stressed Plants (D1)
☐ Inundation Visible on Aerial Imagery (B7)		☐ Geomorphic Position (D2)
☐ Water-Stained Leaves (B9)		☐ Shallow Aquitard (D3)
☒ Aquatic Fauna (B13)		☐ Microtopographic Relief (D4)
		☒ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☒ No ☐	Depth (inches): <u>5</u>	Wetland Hydrology Present? Yes ☒ No ☐
Water Table Present?	Yes ☒ No ☐	Depth (inches): <u>0</u>	
Saturation Present? (includes capillary fringe)	Yes ☒ No ☐	Depth (inches): <u>0</u>	

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

NA

Remarks:

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

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

Sampling Point: W-BJM-010 PEM

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

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of: 15 Multiply by: 1

OBL species 15 x 1 = 15

FACW species 70 x 2 = 140

FAC species 0 x 3 = 0

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 85 (A) 155 (B)

Prevalence Index = B/A = 1.824

Hydrophytic Vegetation Indicators:

☒ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

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

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

Soil

Sampling Point: W-BJM-010 PEM

[illegible]

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20
Applicant/Owner: Enbridge **State:** PA **Sampling Point:** W-BJM-010 PSS
Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** S T Derry R
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.454618 **Long.:** -79.303314 **Datum:** NAD83
Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , **Soil** ☐ , **or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☒ , **Soil** ☐ , **or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Remarks: The PSS portion of the PEM/PSS/PFO wetland complex identified north of the existing pipeline right-of-way that continues to the north and outside of the survey area. The boundary of the PSS portion of the wetland complex was identified by the dominance of <i>Dichanthelium clandestinum</i> with <i>Acer rubrum</i> and <i>Fraxinus pennsylvanica</i> within the shrub/tree layers.	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1) ☒ High Water Table (A2) ☒ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13)	☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1) ☒ Oxidized Rhizospheres along Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Other (Explain in Remarks)	☐ 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): <u>0</u> Water Table Present? Yes ☒ No ☐ Depth (inches): <u>6</u> Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): <u>0</u>		Wetland Hydrology Present? Yes ☒ No ☐	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: <u>NA</u>			
Remarks: The source of hydrology was identified as precipitation and runoff from the existing right-of-way.			

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

Sampling Point: W-BJM-010 PSS

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

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of: 5 Multiply by: 1

OBL species 0 x 1 = 0

FACW species 35 x 2 = 70

FAC species 95 x 3 = 285

FACU species 15 x 4 = 60

UPL species 0 x 5 = 0

Column Totals: 145 (A) 415 (B)

Prevalence Index = B/A = 2.862

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

*Vegetation was naturally problematic due to winter conditions.

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

Soil

Sampling Point: W-BJM-010 PSS

[illegible]

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20
Applicant/Owner: Enbridge **State:** PA **Sampling Point:** W-BJM-010 PFO
Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** S T Derry R
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.454845 **Long.:** -79.302833 **Datum:** NAD83
Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , **Soil** ☐ , **or Hydrology** ☒ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☒ , **Soil** ☐ , **or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
--	--

Remarks:

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

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) ☒ Surface Water (A1) ☐ True Aquatic Plants (B14) ☒ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1) ☒ Saturation (A3) ☐ Oxidized Rhizospheres along Living Roots (C3) ☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4) ☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Drift deposits (B3) ☐ Thin Muck Surface (C7) ☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☒ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13)		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): <u>2</u> Water Table Present? Yes ☒ No ☐ Depth (inches): <u>0</u> Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): <u>0</u>		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA		
Remarks: Hydrology of this system may have been significantly altered due to the active construction practices within the existing pipeline right-of-way that caused the compaction of soils. The construction activity within the ROW could attributed to the inundation of the wetland area within and immediately adjacent to the existing ROW.		

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

Sampling Point: W-BJM-010 PFO

Tree Stratum (Plot size: <u>30'</u> radius)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Acer rubrum</i>	35	☒	100.0%	FAC
2. _____	0	☐	0.0%	
3. _____	0	☐	0.0%	
4. _____	0	☐	0.0%	
5. _____	0	☐	0.0%	
6. _____	0	☐	0.0%	
7. _____	0	☐	0.0%	
8. _____	0	☐	0.0%	
		35	= Total Cover	
Sapling-Sapling/Shrub Stratum (Plot size: <u>15'</u> radius)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Franula alnus</i>	10	☒	66.7%	FAC
2. <i>Ulmus americana</i>	5	☒	33.3%	FACW
3. _____	0	☐	0.0%	
4. _____	0	☐	0.0%	
5. _____	0	☐	0.0%	
6. _____	0	☐	0.0%	
7. _____	0	☐	0.0%	
8. _____	0	☐	0.0%	
9. _____	0	☐	0.0%	
10. _____	0	☐	0.0%	
		15	= Total Cover	
Shrub Stratum (Plot size: <u>None</u>)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	☐	0.0%	
2. _____	0	☐	0.0%	
3. _____	0	☐	0.0%	
4. _____	0	☐	0.0%	
5. _____	0	☐	0.0%	
6. _____	0	☐	0.0%	
7. _____	0	☐	0.0%	
		0	= Total Cover	
Herb Stratum (Plot size: <u>5'</u> radius)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <i>Microstegium vimineum</i>	15	☒	100.0%	FAC
2. _____	0	☐	0.0%	
3. _____	0	☐	0.0%	
4. _____	0	☐	0.0%	
5. _____	0	☐	0.0%	
6. _____	0	☐	0.0%	
7. _____	0	☐	0.0%	
8. _____	0	☐	0.0%	
9. _____	0	☐	0.0%	
10. _____	0	☐	0.0%	
11. _____	0	☐	0.0%	
12. _____	0	☐	0.0%	
		15	= Total Cover	
Woody Vine Stratum (Plot size: <u>None</u>)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	☐	0.0%	
2. _____	0	☐	0.0%	
3. _____	0	☐	0.0%	
4. _____	0	☐	0.0%	
5. _____	0	☐	0.0%	
6. _____	0	☐	0.0%	
		0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of: 35 Multiply by: 1

OBL species 0 x 1 = 0

FACW species 5 x 2 = 10

FAC species 60 x 3 = 180

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column Totals: 65 (A) 190 (B)

Prevalence Index = B/A = 2.923

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

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

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

Soil

Sampling Point: W-BJM-010 PFO

[illegible]

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 05-Mar-20
Applicant/Owner: Enbridge **State:** PA **Sampling Point:** W-BJM-010/011 UPL
Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** S T Derry R
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.45429 **Long.:** -79.303149 **Datum:** NAD83
Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes (MoB) **NWI classification:** NA

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Remarks: Upland reference to W-BJM-010 and W-BJM-011 located within an existing pipeline right-of-way between and situated between both wetland complexes.	

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one required; check all that apply)			
☐ Surface Water (A1)	☐ True Aquatic Plants (B14)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Hydrogen Sulfide Odor (C1)	☐ Sparsely Vegetated Concave Surface (B8)	
☐ Saturation (A3)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Drainage Patterns (B10)	
☐ Water Marks (B1)	☐ Presence of Reduced Iron (C4)	☐ Moss Trim Lines (B16)	
☐ Sediment Deposits (B2)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Dry Season Water Table (C2)	
☐ Drift deposits (B3)	☐ Thin Muck Surface (C7)	☐ Crayfish Burrows (C8)	
☐ Algal Mat or Crust (B4)	☐ Other (Explain in Remarks)	☐ Saturation Visible on Aerial Imagery (C9)	
☐ Iron Deposits (B5)		☐ Stunted or Stressed Plants (D1)	
☐ Inundation Visible on Aerial Imagery (B7)		☐ Geomorphic Position (D2)	
☐ Water-Stained Leaves (B9)		☐ Shallow Aquitard (D3)	
☐ Aquatic Fauna (B13)		☐ Microtopographic Relief (D4)	
		☐ FAC-neutral Test (D5)	
Field Observations:			
Surface Water Present?	Yes ☐ No ☒	Depth (inches): _____	
Water Table Present?	Yes ☐ No ☒	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes ☐ No ☒	Depth (inches): _____	Wetland Hydrology Present? Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA			
Remarks: No sources of hydrology were observed.			

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

Sampling Point: W-BJM-010/011 UPL

Tree Stratum (Plot size: <u>None</u>)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
		0	= Total Cover	
Sapling-Sapling/Shrub Stratum (Plot size: <u>None</u>)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
		0	= Total Cover	
Shrub Stratum (Plot size: <u>None</u>)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
		0	= Total Cover	
Herb Stratum (Plot size: <u>5' radius</u>)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Trifolium repens</i>	35	☒ 35.0%	FACU
2.	<i>Trifolium pratense</i>	25	☒ 25.0%	FACU
3.	<i>Plantago lanceolata</i>	15	☐ 15.0%	UPL
4.	<i>Phleum pratense</i>	15	☐ 15.0%	FACU
5.	<i>Dactylis glomerata</i>	10	☐ 10.0%	FACU
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
11.		0	☐ 0.0%	
12.		0	☐ 0.0%	
		100	= Total Cover	
Woody Vine Stratum (Plot size: <u>None</u>)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
		0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of: 0 Multiply by: 1

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 85 x 4 = 340

UPL species 15 x 5 = 75

Column Totals: 100 (A) 415 (B)

Prevalence Index = B/A = 4.150

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

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

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

Soil

Sampling Point: W-BJM-010/011 UPL

[illegible]

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 24-Jun-16
Applicant/Owner: Spectra Energy **State:** PA **Sampling Point:** W-CMS-016 PEM
Investigator(s): CMS, CMG **Section, Township, Range:** S T Derry R
Landform (hillslope, terrace, etc.): Toeslope/Floodplain **Local relief (concave, convex, none):** none **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.455857 **Long.:** -79.299096 **Datum:** NAD83
Soil Map Unit Name: MoB - Monongahela silt loam, 3 to 8 percent slopes **NWI classification:** L2USAh

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Remarks: PEM wetland located at the toe-of-slope and within the floodplain of the Conemaugh River. Feature is depicted as an NWI and extends south and north outside of the study area and to the River. Boundary follows vegetative community dominated by Fallopia japonica and Chamaedaphne calyculata, drainage patterns, and low chroma, mottled soils. Vegetation is disturbed by pipeline construction and mowing. Portions of the system are planted with Secale cereale and also contain Elymus repens.	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13)	☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1) ☐ Oxidized Rhizospheres along Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Other (Explain in Remarks)	☐ Surface Soil Cracks (B6) ☐ Sparsely Vegetated Concave Surface (B8) ☒ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☒ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☐ Microtopographic Relief (D4) ☐ FAC-neutral Test (D5)	
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____		Wetland Hydrology Present? Yes ☒ No ☐	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Primary source of hydrology: surface water runoff collection and flood flow from Conemaugh River			

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

Sampling Point: W-CMS-016 PEM

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

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of: 23 Multiply by: 1

OBL species 23 x 1 = 23

FACW species 5 x 2 = 10

FAC species 0 x 3 = 0

FACU species 36 x 4 = 144

UPL species 3 x 5 = 15

Column Totals: 67 (A) 192 (B)

Prevalence Index = B/A = 2.866

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

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

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

Soil

Sampling Point: W-CMS-016 PEM

[illegible]

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Westmoreland **Sampling Date:** 24-Jun-16
Applicant/Owner: Spectra Energy **State:** PA **Sampling Point:** W-CMS-016 UPL
Investigator(s): CMS, CMG **Section, Township, Range:** S T Derry R
Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** none **Slope:** 5.0% / 2.9 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.455322 **Long.:** -79.300344 **Datum:** NAD83
Soil Map Unit Name: MoC - Monongahela silt loam, 8 to 15 percent slopes **NWI classification:** N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Remarks: Upland area located on a hillslope east of a compressor station. Vegetation disturbed by mowing and pipeline construction.	

Hydrology

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>	
<u>Primary Indicators (minimum of one required; check all that apply)</u>			
☐ Surface Water (A1)	☐ True Aquatic Plants (B14)	☐ Surface Soil Cracks (B6)	
☐ High Water Table (A2)	☐ Hydrogen Sulfide Odor (C1)	☐ Sparsely Vegetated Concave Surface (B8)	
☐ Saturation (A3)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Drainage Patterns (B10)	
☐ Water Marks (B1)	☐ Presence of Reduced Iron (C4)	☐ Moss Trim Lines (B16)	
☐ Sediment Deposits (B2)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Dry Season Water Table (C2)	
☐ Drift deposits (B3)	☐ Thin Muck Surface (C7)	☐ Crayfish Burrows (C8)	
☐ Algal Mat or Crust (B4)	☐ Other (Explain in Remarks)	☐ Saturation Visible on Aerial Imagery (C9)	
☐ Iron Deposits (B5)		☐ Stunted or Stressed Plants (D1)	
☐ Inundation Visible on Aerial Imagery (B7)		☐ Geomorphic Position (D2)	
☐ Water-Stained Leaves (B9)		☐ Shallow Aquitard (D3)	
☐ Aquatic Fauna (B13)		☐ Microtopographic Relief (D4)	
		☐ FAC-neutral Test (D5)	
Field Observations:			
Surface Water Present?	Yes ☐ No ☒	Depth (inches):	
Water Table Present?	Yes ☐ No ☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ☐ No ☒	Depth (inches):	
		Wetland Hydrology Present?	Yes ☐ No ☒
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

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

Sampling Point: W-CMS-016 UPL

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. _____	0	☐ 0.0%	_____
2. _____	0	☐ 0.0%	_____
3. _____	0	☐ 0.0%	_____
4. _____	0	☐ 0.0%	_____
5. _____	0	☐ 0.0%	_____
6. _____	0	☐ 0.0%	_____
7. _____	0	☐ 0.0%	_____
8. _____	0	☐ 0.0%	_____
= Total Cover			
0			
Sapling-Sapling/Shrub Stratum (Plot size: _____)			
1. _____	0	☐ 0.0%	_____
2. _____	0	☐ 0.0%	_____
3. _____	0	☐ 0.0%	_____
4. _____	0	☐ 0.0%	_____
5. _____	0	☐ 0.0%	_____
6. _____	0	☐ 0.0%	_____
7. _____	0	☐ 0.0%	_____
8. _____	0	☐ 0.0%	_____
9. _____	0	☐ 0.0%	_____
10. _____	0	☐ 0.0%	_____
= Total Cover			
0			
Shrub Stratum (Plot size: _____)			
1. _____	0	☐ 0.0%	_____
2. _____	0	☐ 0.0%	_____
3. _____	0	☐ 0.0%	_____
4. _____	0	☐ 0.0%	_____
5. _____	0	☐ 0.0%	_____
6. _____	0	☐ 0.0%	_____
7. _____	0	☐ 0.0%	_____
= Total Cover			
0			
Herb Stratum (Plot size: <u>5 ft. Radius</u>)			
1. <i>Solidago nemoralis</i>	35	☒ 36.5%	UPL
2. <i>Apocynum cannabinum</i>	15	☒ 15.6%	FACU
3. <i>Solidago canadensis</i>	10	☐ 10.4%	FACU
4. <i>Toxicodendron radicans</i>	7	☐ 7.3%	FAC
5. <i>Oxalis stricta</i>	7	☐ 7.3%	FACU
6. <i>Rumex crispus</i>	5	☐ 5.2%	FAC
7. <i>Chamaedaphne calyculata</i>	5	☐ 5.2%	OBL
8. <i>Juncus tenuis</i>	3	☐ 3.1%	FAC
9. <i>Rubus allegheniensis</i>	3	☐ 3.1%	FACU
10. <i>Taraxacum officinale</i>	3	☐ 3.1%	FACU
11. <i>Fallopia japonica</i>	3	☐ 3.1%	FACU
12. _____	0	☐ 0.0%	_____
= Total Cover			
96			
Woody Vine Stratum (Plot size: _____)			
1. _____	0	☐ 0.0%	_____
2. _____	0	☐ 0.0%	_____
3. _____	0	☐ 0.0%	_____
4. _____	0	☐ 0.0%	_____
5. _____	0	☐ 0.0%	_____
6. _____	0	☐ 0.0%	_____
= Total Cover			
0			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species 5 x 1 = 5

FACW species 0 x 2 = 0

FAC species 15 x 3 = 45

FACU species 41 x 4 = 164

UPL species 35 x 5 = 175

Column Totals: 96 (A) 389 (B)

Prevalence Index = B/A = 4.052

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

Vegetation disturbed by mowing and pipeline construction.

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

Soil

Sampling Point: W-CMS-016 UPL

[illegible]

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Indiana **Sampling Date:** 23-Jun-16
Applicant/Owner: Spectra Energy **State:** PA **Sampling Point:** W-CMS-007-PEM
Investigator(s): CMG, CMS **Section, Township, Range:** S T Blacklick R
Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** none **Slope:** 2.5% / 1.4 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.456716 **Long.:** -79.296892 **Datum:** NAD83
Soil Map Unit Name: MoB - Monongahela silt loam, 2 to 6 percent slopes **NWI classification:** N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , **Soil** ☐ , **or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☐ , **Soil** ☐ , **or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☒ No ☐
Remarks: Hillslope PEM wetland that originates from a groundwater seep. Boundary follows drainage patterns, low chroma mottled soils, and a vegetative community dominated by Fallopia japonica, Juncus tenuis, and Carex crinita. Surrounding hillside also exhibited a Fallopia japonica community, but lacked prevalence of other hydrophytic species, indicators of hydrology, and gley soils.	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
☒ Surface Water (A1) ☒ High Water Table (A2) ☒ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13)	☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1) ☒ Oxidized Rhizospheres along Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Other (Explain in Remarks)	☐ 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): <u>0.25</u> Water Table Present? Yes ☒ No ☐ Depth (inches): <u>8</u> Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): <u>0</u>		Wetland Hydrology Present? Yes ☒ No ☐	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Primary source of hydrology: Groundwater seep and surface water runoff collection			

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

Sampling Point: W-CMS-007-PEM

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

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of: 37 Multiply by: 1

OBL species 37 x 1 = 37

FACW species 55 x 2 = 110

FAC species 30 x 3 = 90

FACU species 40 x 4 = 160

UPL species 0 x 5 = 0

Column Totals: 162 (A) 397 (B)

Prevalence Index = B/A = 2.451

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

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

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

Soil

Sampling Point: W-CMS-007-PEM

[illegible]

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Indiana **Sampling Date:** 23-Jun-16
Applicant/Owner: Spectra Energy **State:** PA **Sampling Point:** W-CMS-007-UPL
Investigator(s): CMG, CMS **Section, Township, Range:** S T Blacklick R
Landform (hillslope, terrace, etc.): Hillslope **Local relief (concave, convex, none):** none **Slope:** 2.5% / 1.4 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.456789 **Long.:** -79.296876 **Datum:** NAD83
Soil Map Unit Name: MoB - Monongahela silt loam, 2 to 6 percent slopes **NWI classification:** N/A

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , **Soil** ☒ , **or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☐ , **Soil** ☐ , **or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Remarks: Upland data point located on a hillslope dominated by Fallopia japonica. Hydric soils are present; area appears to have been disturbed by construction in the recent past.	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13)	☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1) ☐ Oxidized Rhizospheres along Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Other (Explain in Remarks)	☐ Surface Soil Cracks (B6) ☐ Sparsely Vegetated Concave Surface (B8) ☐ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Stunted or Stressed Plants (D1) ☐ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☐ Microtopographic Relief (D4) ☐ FAC-neutral Test (D5)	
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☐ No ☒ Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____		Wetland Hydrology Present? Yes ☐ No ☒	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

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

Sampling Point: W-CMS-007-UPL

Tree Stratum (Plot size: _____)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
		0	= Total Cover	
Sapling-Sapling/Shrub Stratum (Plot size: _____)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
		0	= Total Cover	
Shrub Stratum (Plot size: _____)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
		0	= Total Cover	
Herb Stratum (Plot size: <u>5 ft. Radius</u>)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<i>Fallopia japonica</i>	60	☒ 48.0%	FACU
2.	<i>Poa annua</i>	25	☒ 20.0%	FACU
3.	<i>Solidago nemoralis</i>	15	☐ 12.0%	UPL
4.	<i>Rosa multiflora</i>	15	☐ 12.0%	FACU
5.	<i>Acorus calamus</i>	5	☐ 4.0%	OBL
6.	<i>Fallopia convolvulus</i>	5	☐ 4.0%	FACU
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
11.		0	☐ 0.0%	
12.		0	☐ 0.0%	
		125	= Total Cover	
Woody Vine Stratum (Plot size: _____)		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
		0	= Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of: 0 Multiply by: 500

OBL species 5 x 1 = 5

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 105 x 4 = 420

UPL species 15 x 5 = 75

Column Totals: 125 (A) 500 (B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

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

Soil

Sampling Point: W-CMS-007-UPL

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

Depth (inches)	Matrix			Redox Features					Texture	Remarks
	Color (moist)		%	Color (moist)		%	Type ¹	Loc ²		
0-2	10YR	4/3	100						Clay Loam	
2-6	10YR	4/2	98	10YR	5/6	2	C	M	Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)

- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Shovel refusal at 6" due to gravel

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Indiana **Sampling Date:** 05-Mar-20
Applicant/Owner: Enbridge **State:** PA **Sampling Point:** UPL-BJM-001
Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** S T Blacklick R
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.457595 **Long.:** -79.295877 **Datum:** NAD83
Soil Map Unit Name: Monongahela silt loam, 0 to 3 percent slopes (MoA) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ , **Soil** ☐ , **or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☒ , **Soil** ☐ , **or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☐ No ☒
--	--

Remarks:

The sample point was collected within a depression area surrounded by mixed hardwood forest strip that adjoins monocultural corn fields. The depression area collects surface water from the adjacent farm fields that drains into a concave swale that discharges into this depression area that had the presence of surface water. Due to the lack of dominant hydrophytic vegetation, it was determined that the depression area within the survey boundary was associated with an upland community and the presence of hydrology was likely attributed to recent rainfall.

Hydrology

Wetland Hydrology Indicators:

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

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

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): <u>4</u>	Wetland Hydrology Present? Yes ☒ No ☐
Water Table Present?	Yes ☒ No ☐	Depth (inches): <u>0</u>	
Saturation Present? (includes capillary fringe)	Yes ☒ No ☐	Depth (inches): <u>0</u>	

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

NA

Remarks:

According the AGCIS Wet Climatic Data (Bush Valley 0.5 SE,PA), over the past seven days the weather station recorded an accumulation of precipitation of approximately 0.56 inches. As a result and in-combination of lack of hydrophytic vegetation, the presence of surface water is likely attributed to recent rainfall events.

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

Sampling Point: UPL-BJM-001

Tree Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
		0	= Total Cover	
Sapling-Sapling/Shrub Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
		0	= Total Cover	
Shrub Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
		0	= Total Cover	
Herb Stratum	(Plot size: <u>5' radius</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<u>Stellaria media</u>	45	☒ 75.0%	UPL
2.	<u>Alliaria petiolata</u>	10	☐ 16.7%	FACU
3.	<u>Barbarea vulgaris</u>	5	☐ 8.3%	FACU
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
11.		0	☐ 0.0%	
12.		0	☐ 0.0%	
		60	= Total Cover	
Woody Vine Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
		0	= Total Cover	

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of: 0 Multiply by: 1

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 15 x 4 = 60

UPL species 45 x 5 = 225

Column Totals: 60 (A) 285 (B)

Prevalence Index = B/A = 4.750

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

*Over 40 percent of sample area was bare/open ground. Vegetation was identified as naturally problematic due to winter conditions; however, the species within the sample area could be identified based on the visible characteristics.

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

Soil

Sampling Point: UPL-BJM-001

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

Depth (inches)	Matrix			Redox Features					Texture	Remarks
	Color (moist)		%	Color (moist)		%	Type ¹	Loc ²		
0-4	10YR	4/1	85	10YR	4/4	15	C	M	Silty Loam	
4-8	10YR	4/2	90	7.5YR	4/4	10	C	M	Silty Loam	
8-18	10YR	5/3	80	10YR	4/1	20	D	M	Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10) (LRR N)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)

- ☐ Dark Surface (S7)
☐ Polyvalue Below Surface (S8) (MLRA 147,148)
☐ Thin Dark Surface (S9) (MLRA 147, 148)
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
☐ Umbric Surface (F13) (MLRA 136, 122)
☐ Piedmont Floodplain Soils (F19) (MLRA 148)
☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Conemaugh River Crossing Project **City/County:** Indiana **Sampling Date:** 05-Mar-20
Applicant/Owner: Enbridge **State:** PA **Sampling Point:** UPL-BJM-002
Investigator(s): Brian Miller & Jessica Gumbert **Section, Township, Range:** S T Blacklick R
Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 2.0% / 1.1 °
Subregion (LRR or MLRA): LRR N **Lat.:** 40.458291 **Long.:** -79.29471 **Datum:** NAD83
Soil Map Unit Name: Monongahela silt loam, 0 to 8 percent slopes (MoB) **NWI classification:** NA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒ **, Soil** ☒ **, or Hydrology** ☒ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐
Are Vegetation ☒ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? Yes ☐ No ☒
--	--

Remarks:

The sample point was collected within a slightly concave area of an monocultural corn field that displayed the presence of surface water during the site investigation. The density of the remaining corn stalks appeared to be less abundant than the areas that lacked the presence of surface water. Therefore, this sample point reflects the upland conditions due to the lack of hydrophytic vegetation and hydric soils.

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) ☒ Surface Water (A1) ☐ True Aquatic Plants (B14) ☒ High Water Table (A2) ☐ Hydrogen Sulfide Odor (C1) ☒ Saturation (A3) ☐ Oxidized Rhizospheres along Living Roots (C3) ☐ Water Marks (B1) ☐ Presence of Reduced Iron (C4) ☐ Sediment Deposits (B2) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Drift deposits (B3) ☐ Thin Muck Surface (C7) ☐ Algal Mat or Crust (B4) ☐ Other (Explain in Remarks) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Water-Stained Leaves (B9) ☐ Aquatic Fauna (B13)		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): <u>5</u> Water Table Present? Yes ☒ No ☐ Depth (inches): <u>0</u> Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): <u>0</u>		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA		
Remarks: According the AGCIS Wet Climatic Data, over the past seven days there has been an accumulation of 0.56 inches of precipitation. As a result, the presence of surface water is likely attributed to recent rainfall events.		

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

Sampling Point: UPL-BJM-002

Tree Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
		0	= Total Cover	
Sapling-Sapling/Shrub Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
		0	= Total Cover	
Shrub Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
		0	= Total Cover	
Herb Stratum	(Plot size: <u>5' radius</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<u>Setaria faberi</u>	25	☒ 45.5%	UPL
2.	<u>Aster sp.</u>	5	☐ 9.1%	
3.	<u>Panicum virgatum</u>	25	☒ 45.5%	FAC
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
7.		0	☐ 0.0%	
8.		0	☐ 0.0%	
9.		0	☐ 0.0%	
10.		0	☐ 0.0%	
11.		0	☐ 0.0%	
12.		0	☐ 0.0%	
		55	= Total Cover	
Woody Vine Stratum	(Plot size: <u>None</u>)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.		0	☐ 0.0%	
2.		0	☐ 0.0%	
3.		0	☐ 0.0%	
4.		0	☐ 0.0%	
5.		0	☐ 0.0%	
6.		0	☐ 0.0%	
		0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of: 0 Multiply by: 1

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 25 x 3 = 75

FACU species 0 x 4 = 0

UPL species 25 x 5 = 125

Column Totals: 50 (A) 200 (B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

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

Definition of Vegetation Strata:

Four Vegetation Strata:

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

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

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

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

Five Vegetation Strata:

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

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

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

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

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

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

*Vegetation was significantly disturbed by agricultural practices and winter conditions. Therefore, identification of Aster sp was not possible. The remaining 45 total cover of the sample plot was bare soil and/or corn.

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

Soil

Sampling Point: UPL-BJM-002

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	2.5YR	4/2	100				Silty Loam	
8-18	2.5YR	5/6	100				Silty Loam	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if observed):

Type: _____

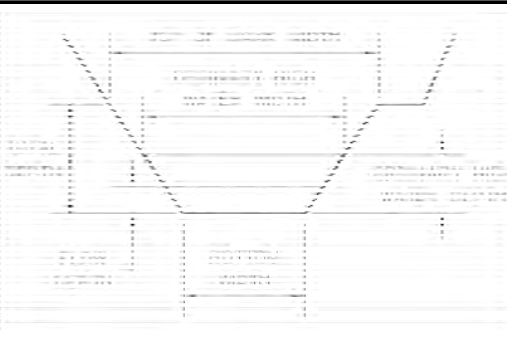
Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

The soil profile was identified as being disturbed by agricultural practices.

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

Project/Site:	Conemaugh River Crossing	Stream ID:	S-JLK-037 PER					
Applicant/Owner:	Enbridge	State:	Pennsylvania					
Investigator(s):	JLK, EMD	City/County:	Indiana, Westmoreland					
Sampling Date:	8/19/2016	Township:	Blacklick, Derry					
Stream Name:	Conemaugh River	Latitude:	40.456604					
Drainage Area (mi²):	>100	Longitude:	-79.297884					
Slope Category:	(1) Low Gradient	Open-Ended?	☒ Upstream	☒ Downstream				
FERC Designation:	N/A	Delineation Type:	☐ Centerline	☒ R/L Banks				
Stream Description:								
Conemaugh River.								
Stream Subsystem		Stream Origin		Predominant Surrounding Landuse				
☒ Perennial	☐ Culvert Discharge	☒ Forest	☐ Commercial					
☐ Ephemeral	☐ Pond Discharge	☐ Field/Pasture	☐ Industrial					
☐ Intermittent	☐ Swamp, Bog or Wetland	☒ Agricultural	☐ Residential					
☐ Tidal	☐ Spring Fed	☒ Other	Pipeline ROW					
☐	☒ Mixture of Origins	Heavy rain in the last 7 days? ☒ Yes ☐ No						
Other:	☐ Surface Water Runoff	Turbidity? ☒ Clear ☐ Other:						
Flow Present? ☒ Yes ☐ No		Flow Direction: North						
For linear projects, provide dimensions at centerline of stream crossing 		Right bank/Left bank facing downstream			Stream Morphology			
		Right Bank (Do not include flow depth)	Horiz.	20.00	Ft.	☐	Riffle %	
			Vert.	10.00	Ft.	☒	Pool %	100
		Left Bank (Do not include flow depth)	Horiz.	25.00	Ft.	☐	Run %	
			Vert.	5.00	Ft.	Canopy Cover		
		Water/Flow Depth			5.00	Ft.	☒	Open
		Bottom of Channel Width			150.00	Ft.	☐	Partly Open
		Ordinary High Water Depth			5.00	Ft.	☐	Shaded
		Top of Bank Width			185.00	Ft.	Is Channel Naturalized?	
		Ordinary High Water Width			185.00	Ft.	☒	Yes ☐ No
Total Depth			10.00	Ft.	Fin Fish Present?			
Macroinvertebrates Present? ☒ Yes ☐ No			☒ Yes ☐ No					
☒ Ephemeroptera	☒ Plecoptera	☒ Trichoptera	☐ Other:					
Aquatic Vegetation - Indicate Dominant Cover Type								
☒ N/A	☐ Rooted Emergent	☐ Rooted Floating	☐ Attached Algae					
	☐ Rooted Submergent	☐ Floating Algae	☐ Free Floating					
Portion of Stream with Aquatic Vegetation (%):								
Riparian Buffer Veg. (60 Ft.) - Indicate Dominant Cover Type And Species								
☒ Trees:	Platanus occidentalis		☐ Grasses:					
☐ Shrubs:			☒ Herbaceous:	Fallopia japonica				
Inorganic Substrate Components (Add to 100%)				Organic Substrate Components (May be <100)				
Type	Diameter	Composition %	Type	Characteristics	Composition %			
Bedrock	-		Detritus	Sticks, Wood, Coarse Plant Material	5			
Boulder	10" +	20						
Cobble	2.5" - 10"	10						
Gravel	0.1" - 2.5"	45	Muck-Mud	Black, Very Fine Organic Material				
Sand	0.06-2 mm	15						
Silt	0.004-0.06 mm	10	Marl	Grey, Shell Fragments				
Clay	<0.004 mm							

APPENDIX B – PHOTOGRAPHS

Photograph: 1	Date: 03/05/2020	
Feature ID: W-BJM-011		
Direction: East		
Description: Wetland W-BJM-011 PEM		

Photograph: 2	Date: 03/05/2020	
Feature ID: W-BJM-011		
Direction: South		
Description: Wetland W-BJM-011 PSS		

Photograph: 3	Date: 03/05/2020	
Feature ID: W-BJM-010		
Direction: West		
Description: Wetland W-BJM-010 PEM		

Photograph: 4	Date: 03/05/2020	
Feature ID: W-BJM-010		
Direction: South		
Description: Wetland W-BJM-010 PSS		

Photograph: 5	Date: 03/05/2020	
Feature ID: W-BJM-010		
Direction: East		
Description: Wetland W-BJM-010 PFO		

Photograph: 6	Date: 06/24/2016	
Feature ID: W-CMS-016		
Direction: West		
Description: Wetland W-CMS-016 PEM		

Photograph: 7	Date: 06/23/2016	
Feature ID: W-CMS-007		
Direction: West		
Description: Wetland W-CMS-007 PEM		

Photograph: 8	Date: 03/05/2020	
Feature ID: UPL-BJM-001		
Direction: Southeast		
Description: Upland UPL-BJM-001 UPL		

Photograph: 9	Date: 03/05/2020	
Feature ID: UPL-BJM-002		
Direction: South		
Description: Upland UPL-BJM-002 UPL		

Photograph: 10	Date: 03/05/2020	
Feature ID: S-JLK-037		
Direction: Downstream		
Description: Watercourse S-JLK-037 PER		

Appendix E

Spill Prevention, Control, and Countermeasure Plan

Spill Prevention Control and Countermeasure (SPCC) Plan &

Preparedness, Prevention, and Contingency (PPC) Plan for Construction Projects

Project:

Revised October 2017

TABLE OF CONTENTS

1.0	PURPOSE/PLAN OBJECTIVE.....	1
2.0	TRAINING.....	2
3.0	PRE-PLANNING - MATERIAL INVENTORY AND DOCUMENTATION	3
4.0	SPILL AND LEAK PREPAREDNESS AND PREVENTION	4
4.1	Prevention and Preparedness.....	4
4.1.1	Secondary Containment	4
4.1.2	Storage/Inspection (Tanks/Containers)	5
4.1.3	Loading/Unloading Areas	5
5.0	CONTINGENCY PLAN AND EMERGENCY PROCEDURES.....	7
6.0	SPILL CLEAN-UP/WASTE DISPOSAL PROCEDURES OF HYDROSTATIC TEST WATER	9
6.1	Oil/Fuel and Hazardous Material Spills and Unanticipated Releases.....	9
6.2	Disposal of Contaminated Materials/Soils.....	10
6.3	Notification	10
7.0	HOUSEKEEPING PROGRAM	11
7.1	Construction Area	11
7.2	Contractor Yards/Ware Yards.....	11
7.3	Security	11

LIST OF APPENDICES

APPENDIX A - TABLES

TABLE I – MATERIAL AND WASTE INVENTORY

TABLE II – EMERGENCY RESPONSE AND PERSONAL PROTECTIVE EQUIPMENT

TABLE III – KEY EMERGENCY CONTACTS

TABLE IV – TANK AND CONTAINER STORAGE EXCEPTION AREAS

TABLE V – WASTE STORAGE SECURITY INFORMATION

TABLE VI– AREAS FOR POTENTIAL LEAKS AND SPILLS

APPENDIX B – MATERIAL SAFETY DATA SHEETS (MSDS)

APPENDIX C – EH&S INCIDENT INVESTIGATION FORM

APPENDIX D – REQUIRED SIGNATURE FORMS

APPENDIX E – PIPE YARD / FACILITY STORAGE DRAWING

ABBREVIATIONS AND DEFINITIONS

CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CI	Chief Inspector (Company employee or Contractor Employee performing the duties of the onsite Construction Manager or Engineer)
Company	Enbridge, Inc.
Company SC	Company Spill Coordinator (The Environmental Inspector or the Chief Inspector)
Contractor	Third party service provider performing construction activities for the Company on property owned or under the control of the Company. This role may be filled by the Company on small projects constructed by Company personnel and equipment.
Contractor SC	Contractor Spill Coordinator
CWA	Clean Water Act
DOT	U. S. Department of Transportation
E&C	Engineering & Construction
ECP	Environmental Construction Permitting
EHS, EH&S	Environmental Health and Safety
EI	Environmental Inspector (Company employee or Contractor Employee performing the duties of onsite environmental specialist overseeing Contractor compliance with environmental permit conditions, laws and regulations)
E&SCP	Erosion & Sedimentation Control Plan
FERC	Federal Energy Regulatory Commission
FWPC	Federal Water Pollution Control Act
HDD	Horizontal Directional Drill
JSA	Job Safety Analysis
MSDS	Material Safety Data Sheets
ppm	Parts per Million
Environmental Lead	Environmental Construction Permitting Specialist assigned to the project
OPA	Oil Pollution Act
RCRA	Resource Conservation and Recovery Act
SPCC Plan or Plan	Spill Prevention, Control and Countermeasure Plan
TSCA	Toxic Substances Control Act

1.0 PURPOSE/PLAN OBJECTIVE

Enbridge, Inc. ("Company") has prepared this Spill Prevention, Control and Countermeasure ("SPCC") Plan ("Plan") for construction projects in the United States. The purpose of this Plan is to reduce the probability and risk of a potential spill or release of oil or hazardous materials by the Company or Contractor during construction-related activities, by providing training to the Company and Contractor and expediting spill response and cleanup. This plan is not intended to meet the requirements of existing facility operations.

The Plan's specific objectives are to identify and address:

- The type and quantity of material handled, stored, or used on site during construction;
- The measures to be taken for spill preparedness and prevention;
- Emergency response procedures;
- Spill incident reporting/notification procedures; and
- Local emergency response team arrangements.

This plan has been prepared to meet the requirements of the Federal Energy Regulatory Commission's ("FERC's") *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), the Oil Pollution Act ("OPA"), the Federal Water Pollution Control Act ("FWPCA"), the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") of 1980, the Resource Conservation and Recovery Act ("RCRA"), the Toxic Substances Control Act ("TSCA") and the Clean Water Act ("CWA").

The Company Environmental Construction Permitting ("ECP") group is responsible for the development and maintenance of this Plan. The Plan will be distributed to the Company Engineering & Construction ("E&C") Department's teams and associated Company personnel and will be included in the construction contract. It is the responsibility of the E&C teams to distribute to any necessary Contractors for implementation.

This Plan outlines both Company and Contractor responsibilities by topic. The Contractor is responsible for implementation of the Plan. In the absence of a Contractor, the Company will be responsible for both Company and Contractor responsibilities as they are laid out in this Plan.

A copy of the Plan must be on site during active construction and should also be maintained at the closest construction field office.

2.0 TRAINING

The Company requires all Contractor and Company personnel engaged in any construction activity to receive training in the implementation of the Plan prior to the commencement of on-site construction related activities.

Site visitors are to be given a brief review of the Plan as part of their orientation on safety and emergency procedures prior to the start of any on-site activities.

Contractor Responsibility

The Contractor will be responsible for the following:

- Keep training records
- Perform training briefings through ongoing meetings like tailgates and the daily project Job Safety Analysis ("JSA") that include:
 - o Precautionary measures to prevent spills;
 - o Potential sources of spills, including equipment failure or malfunction;
 - o Standard operating procedures in the event of a spill;
 - o Applicable notification requirements;
 - o Equipment, materials and supplies available for clean-up of a spill;
 - o Hazardous waste identification procedures;
 - o Generation and proper handling of all non-hazardous waste, hazardous waste, and other toxic substances;
 - o Proper storage, labeling, transportation and disposal of non hazardous and hazardous waste; and
 - o Sample collection procedures.

Company Responsibility

The Company Chief Inspector ("CI"), Environmental Inspector ("EI"), or their designate will perform the following:

- Teach awareness-level training at the initial project environmental training session;
- Ensure further training is available for other new project personnel; and
- Audit training records kept by the Contractor as necessary.

3.0 PRE-PLANNING - MATERIAL INVENTORY AND DOCUMENTATION

Contractor Responsibility

The Contractor will be responsible for the following **prior** to the start of construction:

- Develop an inventory of all oil/hazardous material stored or used during construction;
- Complete Tables I, II, IV, V and VI (see Appendix A);
- Obtain material safety data sheets ("MSDS") (Appendix B) for all hazardous and non-hazardous substances listed in Table I (see Appendix A);
- Prepare a basic facility diagram or sketch for any storage areas, including pipe yards and temporary storage areas. The diagram should include locations of oil-filled containers, direction of run-off, emergency evacuation routes and assembly areas (see Appendix E); and
- Submit the required Tables, MSDS, and signature pages to the ECP's Environmental Lead for review and approval.

Company Responsibility

- Complete Tables III (see Appendix A);
- Review the Tables, MSDS, and signature pages submitted by the Contractor for approval; and
- Distribute approved Tables, MSDS, and signature pages to include in Plan as Appendices A, B and D.
- Fill out any signature pages or forms (see Appendix D)
 - o Management Approval and Cleanup Commitment
 - o Certificate of Determination of Substantial Harm Criteria

4.0 SPILL AND LEAK PREPAREDNESS AND PREVENTION

4.1 Prevention and Preparedness

Contractor Responsibility

- Complete Appendix A, Table I, Material and Waste Storage Inventory, and Table VI, Areas for Potential Leaks and Spills, prior to construction;
- Provide spill prevention, containment, and clean up equipment, and keep it available on-site;
- Perform daily inspections of all equipment, storage tanks, and/or container storage areas;
- Repair all leaking equipment, machinery or tools immediately. If items cannot be repaired, remove them immediately from the project site;
- Maintain a minimal spill kit (absorbent diapers, plastic bags, gloves, etc.) for each piece of hydraulically operated equipment and personnel vehicles within the project area;
- Store materials as indicated in the storage facility diagram or sketch provided by the Contractor in Appendix E;
- Submit a secondary containment plan for any hazardous material storage within the project area to the Company for approval **prior** to storage; and
- Obtain written approval from the project CI or EI for hazardous material storage within 100 feet of a wetland or waterbody.

Company Responsibility

- Review any secondary containment or storage plans submitted by the Contractor for approval.

4.1.1 Secondary Containment

Contractor Responsibility

- PCB (50 parts per million ("ppm") or greater) storage tanks shall be double-walled or have secondary containment that will hold 200 percent of the tank capacity;
- All containers with a storage capacity greater than 55 gallons shall have temporary containment (see Appendix A, Table I for type of temporary containment); and
- Pumps and other portable fuel burning equipment used within 100 feet of a jurisdictional wetland or waterbody will be placed and operated within appropriate secondary containment systems to prevent spills. Secondary containment will hold at least 110% of the tank capacity of the largest tank inside the containment area.

4.1.2 Storage/Inspection (Tanks/Containers)

Contractor Responsibility

- Operate only those tanks for fuel and material storage that meet the approval of the Company;
- Elevate tanks a maximum of two feet above grade;
- Inspect vehicle-mounted tanks to ensure all are equipped with flame/spark arrestors on all vents to prevent self-ignition;
- Locate tank storage in areas that are at least 100 feet from all waterbodies, wetlands, and designated municipal watershed areas, with certain exceptions as approved by ECP and listed in Appendix A, Table IV;
- Complete Appendix A, Table IV, Tank and Container Storage Exception Areas, and submit to the Company for approval prior to construction;
- Inspect all tanks daily for leaks and deterioration. The results of all inspections shall be made available to the Company upon request;
- Do not store incompatible materials in sequence in tanks prior to decontamination (A general list of potentially incompatible materials that may be used during construction are included in Appendix A, Table I);
- Store small cans of gasoline, diesel, solvents, etc., within the temporary secondary containment or within secured trailers or vehicles when not in use;
- Replace leaking and/or deteriorated containers as soon as the condition is first detected; and
- Ensure that all container storage and containment areas being used to store hazardous materials or wastes are in compliance with applicable local, state and federal requirements.

4.1.3 Loading/Unloading Areas

Contractor Responsibility

- Transfer liquids and refuel only in pre-designated and pre-approved locations that are at least 100 feet from all waterbodies and wetlands, with certain exceptions as approved by the EI and listed in Appendix A;
- Inspect the area beneath loading/unloading location for spills before and after each use;
- Utilize drip pans at all hose connections while loading/unloading liquids. If a leak or spill occurs, the loading/unloading operation will be stopped and the spill will be contained, cleaned up and collected prior to continuing the operation;
- Inspect all outlets of the tank trucks prior to leaving the loading and unloading area to prevent possible leakage from the truck while in transit;
- Equip any service vehicle used to transport lubricants and fuel with an emergency response spill kit. At a minimum, this kit must include:
 - o 25 lbs of granular oil absorbent
 - o 10, 48" x 3" oil socks

- o 5, 17" x 17" oil pillows
 - o 1, 10" x 4" oil boom
 - o 20, 24" x 24" x 3/8" oil mats
 - o Garden size, 6 mil, polyethylene bags
 - o 10 pair of latex gloves
 - o 1, 55-gallon polyethylene open-head drum;
- Equip any service vehicle used to transport lubricants and fuel with a chemical response kit. At a minimum, this kit must include:
 - o 1 bag of loose chemical pulp
 - o 2 to 3, 17" x 17" chemical pillows
 - o 2, 48" x 3" chemical socks
 - o 5, 18" x 18" x 3/8" adsorbent mats
 - o garden-size, 6 mil, polyethylene bags
 - o 10 pair of latex gloves
 - o 1, 30-gallon polyethylene open-head drum
 - o hazardous waste labels

Company Responsibility

- Personnel shall be present during loading and unloading activities.

5.0 CONTINGENCY PLAN AND EMERGENCY PROCEDURES

All Company and Contractor personnel have responsibilities for spill prevention, control, and countermeasure.

Contractor Responsibility

- Maintain adequate manpower and equipment at the pipe yard or contractor ware yard necessary to divert any spill from reaching waterbodies and wetland areas; and
- Complete Appendix A, Table I, Emergency Response and Personal Protective Equipment, with a list of emergency equipment and storage location.

Company Responsibility

- Complete Appendix A, Table III, Key Emergency Contacts, prior to construction, and update as necessary.

First Responder Responsibility

The first responder is the person who first observes a spill or release of oil or other hazardous materials to the environment.

This person will take the following steps:

- Assess the situation to determine if the situation poses an immediate threat to human health or the environment;
- Identify hazardous material involved, if any;
- Report the spill to the Company Spill Coordinator ("Company SC") and Contractor Spill Coordinator ("Contractor SC") immediately; and
- Standby at a safe distance and keep others away.

Contractor SC Responsibility

- Coordinate the response to all spills which occur as a result of Contractor operations;
- Report the spill to the Company;
- Coordinate with the Company SC; and
- Conduct subsequent site investigations and associated incident reports unless otherwise directed by the Company.

The Contractor SC may be removed by the Company SC as spill response coordinator at the discretion of the Company.

The Contractor SC will direct Contractor personnel to:

- Shut off source of spill or leak as quickly as possible;
- Minimize affected area with appropriate containment or dike/berm;
- Assemble required spill response equipment as required (protective clothing, gear, heavy equipment, pumps, absorbent material, empty drums, etc.);
- Ensure that spilled material is placed in appropriate containers, in accordance with the best management practices and applicable laws and regulations;
- Properly label and store containers in accordance with applicable requirements; and
- Ensure that all spill response equipment is fully functional. Any equipment that cannot be reused shall be replaced.

Company SC Responsibility

The Company SC will be responsible for overseeing the Contractor SC's clean up of all spills of oil or hazardous materials.

Upon notification, the Company SC shall:

- Assess situation for potential threat to human health, environment and the neighboring community;
- Implement evacuation, if necessary;
- Activate emergency shutdown, if necessary;
- Control source as conditions warrant;
- Ensure that incompatible materials are kept away from the impacted area;
- Keep any potential ignition source away from the impact area, if spilled material is flammable;
- Coordinate sampling, disposal and equipment decontamination with Environmental Health and Safety ("EHS") in Houston, if necessary;
- For spills of PCBs, contact EHS for special spill response requirements related to PCB spills;
- Assist with the coordination of cleanup and disposal activities;
- If necessary, contact outside remediation services, in coordination with EHS, to assist with clean up;
- Notify EHS of all quantities and description of wastes to be handled by EHS;
- Complete the *EH&S Incident Investigation Form* (see Appendix C) and distribute accordingly;
- For unanticipated release of hydrostatic test waters, notify state contact if required by state permit, in accordance with timeframes required by state permit;
- Review permits to determine if immediate water sampling of test water is required and arrange if necessary; and
- Determine if local Right of Way agent will notify public officials (e.g. township manager and/or mayor).

6.0 SPILL CLEAN-UP/WASTE DISPOSAL PROCEDURES OF HYDROSTATIC TEST WATER

6.1 Oil/Fuel and Hazardous Material Spills and Unanticipated Releases

Contractor Responsibility

- Ensure no immediate threat to surrounding landowners or environment;
- Identify/verify the material and quantity released;
- Review MSDS to determine the proper handling;
- Ensure that Personal Protective Equipment and containers are compatible with the substance;
- Remediate small spills and leaks as soon as feasible. Use adsorbent pads whenever possible to reduce the amount of contaminated articles;
- Restrict the spill by stopping or diverting flow to the oil/fuel tank;
- If the release exceeds the containment system capacity, immediately construct additional containment using sandbags or fill material. Every effort must be made to prevent the seepage of oil into soils, wetlands and surface waters;
- Block off drains and containment areas to limit the extent of the spill. For chemical spills, never wash down a spill with water;
- If a release occurs into a storm drain or stream, immediately pump any floating layer into drums. For high velocity streams, place oil booms or hay bales between the release area and the site boundary and downstream of affected area. As soon as possible, excavate contaminated soils and sediments within approved work areas;
- Collect and reclaim as much of the spill as possible using a hand pump or similar device. Containerize contaminated soils in an appropriate Department of Transportation ("DOT") container in accordance with applicable requirements. Never place incompatible materials in the same drum;
- For larger quantities of soils, construct temporary waste piles using plastic liners placing the contaminated soils on top of the plastic and covered by plastic. Plastic-lined roll-off bins should be leased for storing this material as soon as feasible;
- Properly label any drums, containers or storage piles in accordance with applicable requirements;
- Move drum to secure staging or storage area;
- Decontaminate all equipment in a contained area and collect fluids in drums;
- Document and report cleanup activities to the Company SC as soon as feasible; and
- If environmentally sensitive resources (wetlands, waterbodies) exist in the area, ensure that Best Management Practices as described in Company's Erosion & Sedimentation Control Plan ("E&SCP") are utilized to minimize impact to these resources.

Company Responsibility

- If necessary, arrange for sampling the substance for analysis and waste profiling, according to instructions from the Company Standard Operating Procedures, and/ or EHS;
- Document and report activities to EHS as soon as feasible.

6.2 Disposal of Contaminated Materials/Soils

For Company and Contractor protocol on the disposal of contaminated materials, soils, or any other waste materials, please see the Company Waste Management Plan.

6.3 Notification

Company Responsibility

- The Company SC shall notify the Emergency Spill Hotline at (800) 735-6364 and those listed in Appendix A, Table III, immediately for spills that meet any of the following criteria:
 - o one pound or more of a solid material (excluding Horizontal Directional Drill (“HDD”) mud) spilled on land;
 - o five gallons or more of a liquid spilled on land;
 - o creates a sheen on water; or
 - o unanticipated release of hydrostatic test water.
- If necessary, notify the local fire department, law enforcement authority, or health authority as appropriate. The following information should be provided:
 - o the name of the caller and callback number;
 - o the exact location and nature of the incident;
 - o the extent of personnel injuries and damage;
 - o the extent of release; and
 - o the material involved and appropriate safety information.
- An incident report form should be filled out following containment and cleanup of the spill or release. Incident data should be gathered using the *EH&S Incident Investigation Form* (see Appendix C) and should be sent to the appropriate ECP project manager for records retention and entry into the EPASS/ILP database.

7.0 HOUSEKEEPING PROGRAM

7.1 Construction Area

Contractor Responsibility

- Maintain construction area in neat and orderly manner; and
- Routinely collect and properly dispose of all trash off-site.

7.2 Contractor Yards/Ware Yards

Contractor Responsibility

- Produce a "site specific" plan to address storage, spill prevention and overall yard organization for all contractor yards and ware yards. Contractor yard "site specific" plans should include the following:
 - o facility name;
 - o physical address;
 - o longitude and latitude coordinates;
 - o directions to facility (including road names);
 - o date of first oil and hazardous material storage;
 - o location of oil and hazardous material containers greater than 55 gallons;
 - o loading/unloading areas;
 - o direction of drainage flow; and
 - o primary and secondary evacuation routes.
- Provide adequate aisle spacing to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment as necessary in storage areas;
- Ensure similar housekeeping practices enforced in construction areas are also implemented in storage areas; and
- Any facility with an aggregate aboveground oil storage capacity greater than 1,320 US gallons but less than 10,000 gallons must have the plan self-certified by the owner or operator of the qualified facility or a licensed Professional Engineer. Any facility with an aggregate aboveground oil storage capacity greater than 10,000 gallons must have the plan reviewed and certified by a licensed Professional Engineer.

7.3 Security

Contractor Responsibility

- Hazardous wastes and waste containing PCBs greater than 50 ppm will be stored in a secured location (i.e. fenced, locked, etc.). Fuel storage areas will be located to minimize, as much as possible, tampering by unauthorized personnel during non-operational hours.
- Complete Table V, Waste Storage Security Information, in Appendix A, prior to construction.

Company Responsibility

- Review Table V, Waste Storage Security Information in Appendix A, that has been prepared by the Contractor prior to construction.



Project Signatures:

Company Spill Coordinator:

Print Name

Signature

Date

Contractor Spill Coordinator

Print Name

Signature

Date

APPENDIX A - TABLES

TABLE I – MATERIAL AND WASTE INVENTORY

Oil and Fuel to be used or stored on site during construction:

STORAGE CAPACITY OF OIL FILLED-CONTAINERS

Container Number ^{a/}	Storage capacity (volume)	Location

^{a/} The reference container numbers should correspond to the facility diagram in Appendix E.

Commercial Chemicals to be used or stored on site during construction:

Hazardous and Non-Hazardous Wastes to be used or stored on site during construction:

Incompatible Materials to be used or stored on site during construction:

Type of Temporary Containment containers to be used:

TABLE I TO BE COMPLETED BY CONTRACTOR Prior to the Start of Construction and updated as necessary
--

TABLE II – EMERGENCY RESPONSE AND PERSONAL PROTECTIVE EQUIPMENT

Spill Response:

Equipment	Quantity	Location

Fire Protection:

Equipment	Quantity	Location

Personnel Protection:

Equipment	Quantity	Location

TABLE II TO BE COMPLETED BY CONTRACTOR
Prior to the Start of Construction and updated as necessary



TABLE III – KEY EMERGENCY CONTACTS

The list of key personnel who will be contacted in the event of an emergency or spill incident include:

1. Company Emergency Contacts Contact Name Phone Number

Company Spill Coordinator & Environmental Inspector (within 15 minutes identifying of incident)

24-hour Emergency Spill Hotline -- 1-800-735-6364 (within 15 minutes of identifying incident)

Regional Environmental Coordinator (within 15 minutes of identifying incident)

ECP's Project Environmental Lead / PM (notify within 60 minutes of incident & submit Spill Report Form within 24 hours to ECP PM)

Company Project Manager

Company Environmental Coordinator

Field Construction
Company Construction Coordinator

2. Contractor Emergency Contact

Contractor Spill Coordinator

3. Local Authorities – As necessary

Emergency contact for Police, Fire & Medical assistance

Dial 911

<u>Non-Emergency Local Authorities or Contacts</u>		
Location	Contact	Phone Number

4. **Environmental Agencies**

Notification to be made by Regional Environmental Coordinator and ECP's PM

5. **Potential Environmental Remedial Service Contractors**

Clean Harbors Environmental Services, Inc.	Howard Alexander	(800) 782-8805
Safety-Kleen (FS), Inc	Edward A. Mitchell	(281) 478-7700
U.S.A. Environment	Cesar Garcia	(713) 425-6925 or (832) 473-5354
WRS Infrastructure and Environment Inc	Steve Maxwell	(281) 731-0886

TABLE III TO BE COMPLETED BY COMPANY Prior to the Start of Construction and updated as necessary



TABLE IV – TANK AND CONTAINER STORAGE EXCEPTION AREAS

Tank and container storage shall be located in areas that are at least 100 feet from all waterbodies and wetlands.

The below exceptions have been approved by ECP and EHS:

- 1.
- 2.
- 3.
- 4.

TABLE IV TO BE COMPLETED BY CONTRACTOR Prior to the Start of Construction and updated as necessary
--

TABLE V – WASTE STORAGE SECURITY INFORMATION

TABLE V TO BE COMPLETED BY CONTRACTOR Prior to the Start of Construction and updated as necessary
--

TABLE VI—AREAS FOR POTENTIAL LEAKS AND SPILLS

- 1.
- 2.
- 3.
- 4.

TABLE VI TO BE COMPLETED BY CONTRACTOR Prior to the Start of Construction and updated as necessary

APPENDIX B - MSDS

APPENDIX C – EH&S INCIDENT INVESTIGATION FORM

Enbridge, Inc.

EHS Incident Investigation/Data Collection Form

This form replaces: C-23 Occupational Injury and Illness Report, 19-06 Field Spill Report, 19-20 Outside Agency Inspection, 19-21 Natural Gas Release Record, and 19-25 Contamination Encounter Report

(Must Be Completed)

Page 1 of 4

BUSINESS UNIT US	REGION (Circle One) Northeast / Southeast / Corporate	AREA	LOCATION (Entity)
----------------------------	---	-------------	--------------------------

Complete each section and field as applicable for the Incident Type you are entering.
completed.

All required fields (**bold**) are EPASS ILP system required and must be completed.

Incident Type: ☐ Injury / Illness ☐ Vehicle ☐ Environmental ☐ Complaint ☐ Near Miss
(Check multiple incident types as appropriate)

Category: ☐ Incident with Loss ☐ Incident without Loss **Initiating Event:** _____

Status: Open ☐ **Do not include in rates and counts:** ☐ Note: (Pertains to all incidents without loss.)

Date Reported: _____ **Date Occurred:** _____ **Time Occurred:** _____ AM ☐ PM ☐

Describe exactly how the incident occurred. Be very specific in details without reference to individual(s) names.

Employee Name: _____ **Incident Owner (Supervisor) Name:** _____

Contractor Incident: ☐ Yes ☐ No **Dependent** ☐ **Independent** ☐

Contract Employee Name: _____ **Phone Number:** _____

Contractor Contact Name: _____ **Contractor Company Name:** _____

Contractor Address, City, State, Zip code _____

Time Work Began: _____ AM ☐ PM ☐ **Time work began cannot be confirmed:** ☐

Response Agency Involved: ☐ Police ☐ Fire ☐ Ambulance ☐ HazMat ☐ Insurance ☐ External Response Support

Emergency Response Coordination: ☐ Internal ☐ External **Third Party Damage:** _____

Description of Immediate Response: (Note: This information is included in the ILP e-mail initial incident notification.)

Injury / Illness Incident Detail

SRS TeleClaim Contact #: 1-866-880-1777 Enbridge, Inc. Account #: 57568

Classification: ☐ First Aid ☐ Medical Treatment ☐ Modified / Restricted Work ☐ Lost Time ☐ Fatality

NOTE: Contact Human Resources to determine if Certificate of Disability is appropriate.

Event/Exposure (i.e. fall, slip/trip, strain) _____ **Injury source (i.e. tool, chemicals)** _____

Body Part (i.e. R/L leg, hand, back) _____ **Nature of Injury (i.e. cut, bruise, burn)** _____

Reported to Case Manager / SRS : ☐ Yes ☐ No **OSHA Log Injury Type(i.e. injury, illness, hearing loss)** _____

OSHA Log Injury Short Description: _____

Vehicle Incident Detail

Driver **MUST CALL PHH @ 800-446-7052** and provide vehicle unit #.

For any other claims, contact SRS Teleclaim @ 866-880-1777 w/Enbridge, Inc. Account #: 57568

Vehicle Type: (i.e. car, pickup) _____ **Ownership (i.e. company, rental)** _____

Activity (i.e. turning, passing, backing): _____ **Location:(i.e. urban, ROW, highway):** _____

Collision Location (i.e. ROW, parking lot, intersection) _____ **Road Type (i.e. concrete, dirt)** _____

Contributing Factors (i.e. failure to yield, keep safe distance): _____

Traffic Controls (i.e. stop sign, traffic signal, railroad crossing): _____

Collision Type i.e. backing, turning, rear ended) _____ **Collision Object (i.e. vehicle, animal, object)** _____

Road Conditions (i.e. dry, wet, ice, snow) _____ **Weather Conditions (i.e. rain, snow, clear)** _____

Journey Purpose (i.e. Business, Personal, T/F Work) _____ **Lighting (i.e. dawn, day, night):** _____

Third Party Name _____ **Address:** _____

Environmental Incident Detail

Section C

Spill/release Source: _____ **Reportable:** ☐ Yes ☐ No **Unplanned Release:** ☐ Yes ☐ No

Unexpected Contaminated Soil Encountered: ☐ Yes ☐ No

Medium: ☐ Air ☐ Containment ☐ Ground ☐ Treatment System ☐ Water

Units: ☐ Gallons ☐ Pounds ☐ mmscf (millions) ☐ mcf (thousands) **Spill / Release Amount:** _____

Material (i.e. natural gas, oil, pipeline condensate, glycol) _____ Occur near wetlands: ☐

Environmental Impact: _____ Wind: _____ Direction: _____ Speed: _____ Temperature: _____

Line Size: _____ Line Pressure: _____ Start Time: _____ End Time: _____

Section D

Transportation Incident Detail

Type of Shipment:
☐ Hazardous Material Shipment ☐ Undeclared shipment with no release ☐ Specification cargo tank

Type of Report: ☐ Initial Report ☐ Follow-up Report

Mode of Transportation: ☐ Air ☐ Highway/Roadway ☐ Rail ☐ Water

Spill Occurred: ☐ In transit ☐ Loading ☐ Unloading ☐ In Transit Storage

Carrier: _____ **Shipper:** _____

Spill Location - Address, City, State, Zip code: _____

Hazardous Material: _____ **Quantity:** _____ **Units (i.e. gallons)** _____

Comments: _____

Section E

Regulatory Information / Notification / Outside Agency Inspection Detail

Regulatory Notification: ☐ **Date:** _____ **Routine Inspection:** ☐ **Tests conducted:** ☐ **Explain:** _____

Regulatory Agency: _____ **Officer Name:** _____

Warning Issued: ☐ **Fine Issued:** ☐ **Amount:** _____ **Order / NOV Issued:** ☐ **Date:** _____

Reference #: _____ **Extension:** ☐ **Date:** _____ **Rescind:** ☐ **Date:** _____

Found During Inspection: ☐ **Suspect Soil:** ☐ **Sampling Required:** ☐ **Permit Exceedance:** _____

Accompanied by (name): _____ **Comments:** _____

Section F

EHS Complaint Detail

Complaint type (i.e. noise, odor, property damage): _____ ☐ New ☐ Ongoing

Parameters of Concern: _____

Attach any additional doctor injury status, police or agency reports as appropriate for the incident.

FAX OR EMAIL THIS DOCUMENT TO YOUR REGION EHS SPECIALIST for data entry into ILP within 24 hours of an environmental or safety incident AND fax a copy to Houston EHS at 713-386-4249.

Reported by: _____ Signature: _____ Phone: _____

Causal Factors (TapRoot®) and Corrective Actions*

(Contact Region EHS Specialist for help in completing this section.)

(EHS Specialist will utilize the most current version of the TapRoot® Root Cause Tree® Dictionary*)

Section G

ILP Incident #: _____ **Investigation End Date:** _____

It is essential to record the unique identifying number from the ILP database.

Risk Rank: ☐ 1 ☐ 2 ☐ 3 ☐ 4 (Check only one box.)
(See Risk Matrix)

TapRoot® Cause Outcome*

Causal Factor: A problem or issue that, if corrected, could have prevented and incident from occurring or significantly reduced the incident's consequences.*

Effective Corrective Action is **SMART**, effective, and reviewed for unintended consequences.*

Specific
Measureable
Accountable
Reasonable
Timely

1. Identify causal factors - up to 4 cause codes. (Free form text.)
2. Select from the following menu. Note: the line number on this form relates to text on the drop down menu in the ILP database. The number is not found in ILP.

No. Cause Code Menu (Not inclusive of all TapRoot® Cause Codes*)

1	Human Performance Difficulty	Procedures	Not Used/Not Followed
2	Human Performance Difficulty	Procedures	Wrong
3	Human Performance Difficulty	Procedures	Followed Incorrectly
4	Human Performance Difficulty	Training	No Training
5	Human Performance Difficulty	Training	Understanding NI (Needs Improvement)
6	Human Performance Difficulty	Quality Control	No Inspection
7	Human Performance Difficulty	Quality Control	QC NI (Quality Control Needs Improvement)
8	Human Performance Difficulty	Communications	No Communication or Not Timely
9	Human Performance Difficulty	Communications	Turnover NI
10	Human Performance Difficulty	Communications	Misunderstood Verbal Communication
11	Human Performance Difficulty	Management System	SPAC NI (Standard Practices and Controls Need Improvement)
12	Human Performance Difficulty	Management System	SPAC Not Used (Standard Practices and Controls Not Used)
13	Human Performance Difficulty	Management System	Oversight/Employee Relations
14	Human Performance Difficulty	Management System	Corrective Action
15	Human Performance Difficulty	Human Engineering	Human/Machine Interface
16	Human Performance Difficulty	Human Engineering	Work Environment
17	Human Performance Difficulty	Human Engineering	Complex System
18	Human Performance Difficulty	Human Engineering	Non Fault Tolerant System
19	Human Performance Difficulty	Human Engineering	Preparation
20	Human Performance Difficulty	Work Direction	Selection of Worker
21	Human Performance Difficulty	Work Direction	Supervision During Work
22	Equipment Difficulty	Tolerable Failure	
23	Equipment Difficulty	Design	Design Specs
24	Equipment Difficulty	Design	Design Review
25	Equipment Difficulty	Design	Independent Review NI (Needs Improvement)
26	Equipment Difficulty	Equipment/Parts Defective	Procurement
27	Equipment Difficulty	Equipment/Parts Defective	Manufacturing
28	Equipment Difficulty	Equipment/Parts Defective	Handling
29	Equipment Difficulty	Equipment/Parts Defective	Storage
30	Equipment Difficulty	Equipment/Parts Defective	Quality Control
31	Equipment Difficulty	Preventive/Predictive Maintenance	PM NI (Preventive Maintenance Needs Improvement)
32	Equipment Difficulty	Repeat Failure	Management System
33	Natural Disaster	Sabotage	
34	Other		

Section H

Complete the Causal Factors and Cause Code on page 4.

Page 3 of 4

Causal Factors free form text box. Cause Code Number i.e. 1 through 34

Causal Factor 1: _____Cause Code Number: _____Cause Code Number: _____Cause Code Number: _____**Causal Factor 2:** _____Cause Code Number: _____Cause Code Number: _____Cause Code Number: _____**Causal Factor 3:** _____Cause Code Number: _____Cause Code Number: _____Cause Code Number: _____**Causal Factor 4:** _____Cause Code Number: _____Cause Code Number: _____Cause Code Number: _____**Corrective Action Information:****Title:** _____**Author:** _____**Author Date:** _____**Origin Cause:** _____**Proposed Corrective Action:** _____**Proposed Completion Date:** _____**Assigned to:** _____**Actual Corrective Action:** _____**Actual Completion Date:** _____

After the investigation is complete, and when a corrective action is developed, ensure the causal factors, codes and corrective action information in this document is sent to the person responsible for data entry into ILP i.e. Region EHS Specialist or Supervisor.

FAX OR EMAIL THIS DOCUMENT TO YOUR REGION EHS SPECIALIST for data entry into ILP AND fax a copy to Houston EHS at 713-386-4249.

Prepared by: _____ Signature: _____ Phone: _____

* © System Improvements, Inc.

DISTRIBUTION:

Original - Station ENV File 9.2 or 10.0

Original - S&H File # 22.1, 22.2, or 22.5 as appropriate per H&S SOP

Copy - Region EHS

Copy - Houston EHS - fax 713-386-4249

Copy - Houston Fleet Services

RETENTION:

Original - See SOP 3 or 5 years

Original - See EHS Retention Rule

Copy - As needed

Copy - Permanent

Copy - As needed



Frequency	Likelihood <i>(facility, region, major project)</i>							
> 1/yr	Expected to occur more than once per year at a facility/project	Likelihood Category	L5	III	II	II	I	I
>1/10yrs	Expected to occur several times in facility/project lifetime		L4	III	III	II	II	I
>1/100yrs	Expected to occur once in the facility/project lifetime		L3	IV	III	III	II	II
>1/1,000 yrs	May occur in the facility/project lifetime		L2	IV	IV	III	III	II
>1/10,000 yrs	Remote chance of happening		L1	IV	IV	IV	III	III
Consequence				C1	C2	C3	C4	C5
		Consequence Category						
		Injury Outcome	First Aid or Minor Illness	Medical Aid / OSHA Recordable Restricted Work.	Lost Time Injury	Permanent Disability	Fatality	
		Environment	Insignificant onsite / localized impact	Negligible onsite or offsite impact below	Environmental impact resulting in regulatory	Significant impact leading to enforcement	Catastrophic impact, long-term liability,	
		Financial	<\$1K	\$1-10K	\$10-100K	\$100K-\$1M	>\$1M	
		Reputation	Individual concern, no media attention	Community concern with local media attention	State / Provincial concern with regional media attention	Response causing impact on share price	Response causing major impact on share price	
Risk Ranking	Guideline Interpretation							
I	It is recommended that no activity be permitted without immediate mitigation taken to lower the risk rank.							
II	Further risk controls should be considered to lower either the probability or consequence of the risk.							
III	Some risk controls may be required.							
IV	No further reduction in risk is required.							

APPENDIX D – REQUIRED SIGNATURE FORMS



Management Approval and Cleanup Commitment
40 CFR §112.7

This Spill Prevention, Control and Countermeasures Plan (Plan), including the Spill Procedures Chart and Supplemental Document, which has been prepared in accordance with 40 CFR 112, has been reviewed and approved by the Project Manager. The Project Manager has the level of authority to commit the necessary resources to fully implement this Plan and to contain and clean up any oil discharged at this facility. By signing below, the **Project Manager** also **authorizes station supervisors to expediently commit manpower, equipment, and materials necessary to contain and remove any harmful quantity of oil discharged from this facility (40 CFR §112.7). This commitment includes the authority to use company and/or contract personnel and equipment.**

Facility Name: _____

Location: _____

Signature: _____

Name: _____

Date: _____

Title: _____



CERTIFICATE OF DETERMINATION OF SUBSTANTIAL HARM CRITERIA

Facility**Name:** _____**Location:** _____

Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons? Yes____ No ____

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is large enough to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area? Yes____ No ____

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in rule 40 CFR 112 Attachment C-III or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to this Part, Section 13, for availability) and the applicable Area Contingency Plan.

Yes____ No ____

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to this appendix or a comparable formula) such that a discharge from the facility would shut down public drinking water intake? For the purpose of 40 CFR 112, public drinking water intakes are analogous to public water systems as described in 40 CFR 143.2(c)

Yes____ No ____

Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last five years?

Yes____ No ____

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for this information, I believe that the submitted information is true, accurate, and complete.

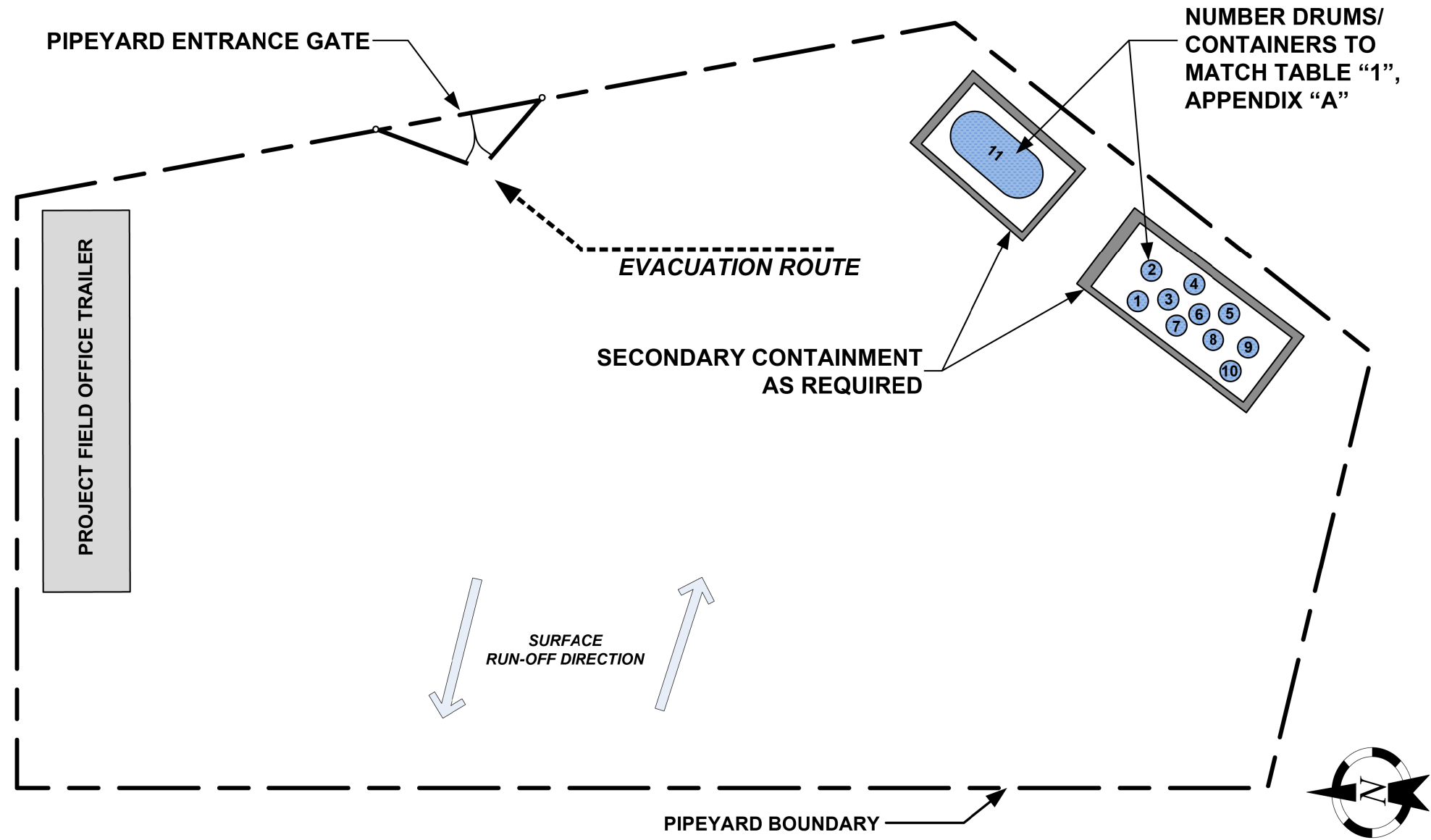
Signature: _____

Title: _____

Name (please type or print): _____

Date: _____

APPENDIX E – PIPEYARD / FACILITY STORAGE DRAWING



LEGEND

- PIPEYARD BOUNDARY
- STORAGE CONTAINERS
- OFFICE TRAILER

SAMPLE PIPEYARD: FACILITY STORAGE DRAWING			
REV.	REV. DATE	REV. APRVD.	
CKD.BY	ENG.	DATE 1/6/2011	W.O.
DRN.BY J.M.F.	SCALE NONE	DWG.NO	



5400 Westheimer Ct.
Houston, TX. 77056-5310
713.627.5400

Appendix F
Pennsylvania Natural Heritage Program Review
Receipt

1. PROJECT INFORMATION

Project Name: **Conemaugh River Crossing**

Date of Review: **2/24/2020 02:30:31 PM**

Project Category: **Energy Storage, Production, and Transfer, Energy Transfer, Pipeline (gas, oil) - service, replace existing line**

Project Area: **34.74 acres**

County(s): **Indiana; Westmoreland**

Township/Municipality(s): **BLACKLICK; DERRY**

ZIP Code: **15717; 15725**

Quadrangle Name(s): **BLAIRSVILLE**

Watersheds HUC 8: **Conemaugh**

Watersheds HUC 12: **Backlick Creek-Conemaugh River; Conemaugh River-Kiskiminetas River**

Decimal Degrees: **40.456304, -79.298776**

Degrees Minutes Seconds: **40° 27' 22.6946" N, 79° 17' 55.5938" W**

2. SEARCH RESULTS

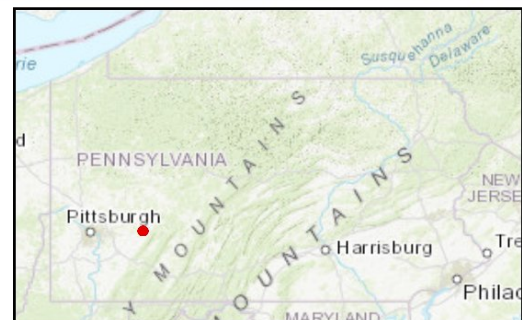
Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

Conemaugh River Crossing

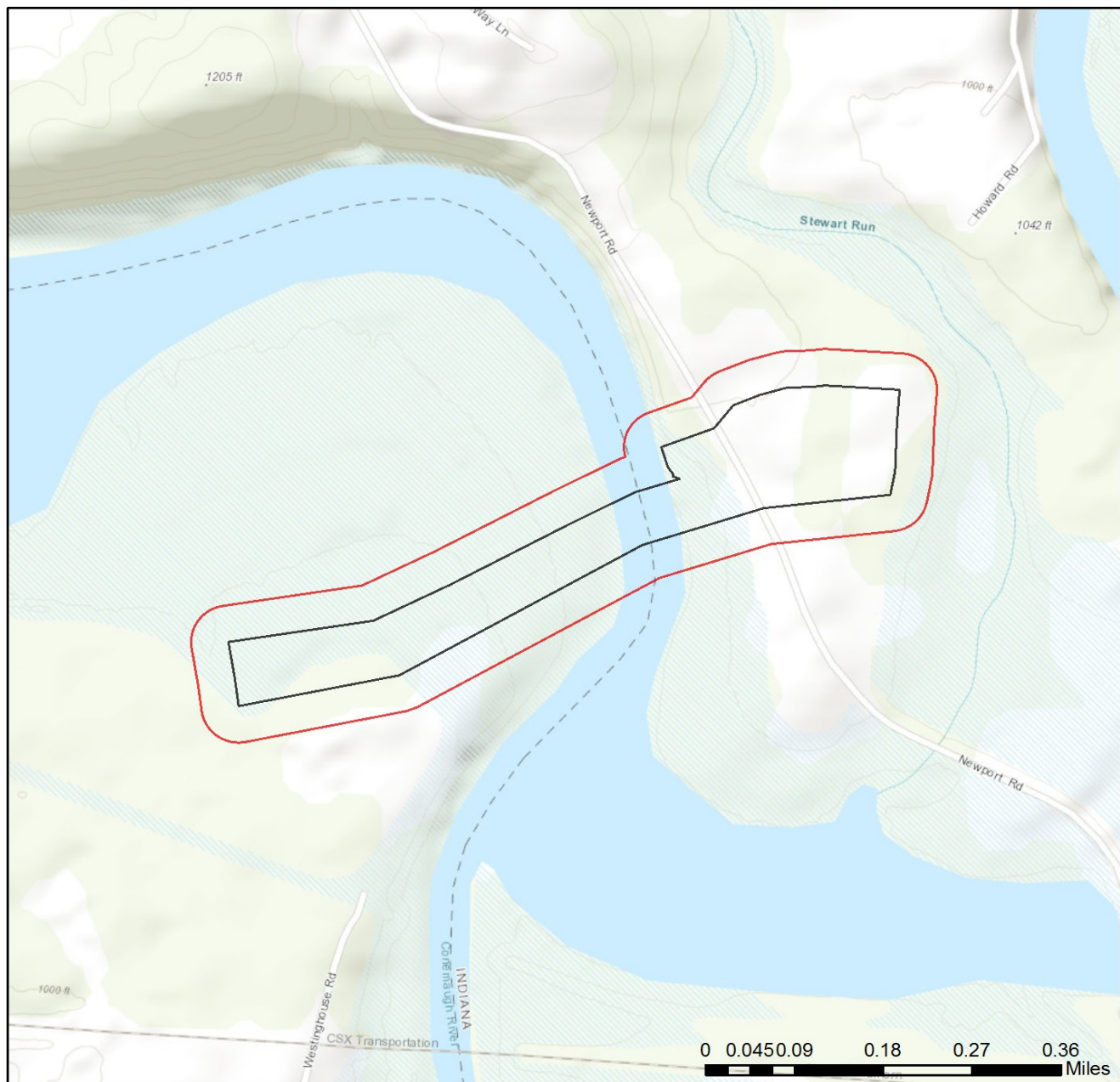


- ☐ Project Boundary
- ☐ Buffered Project Boundary



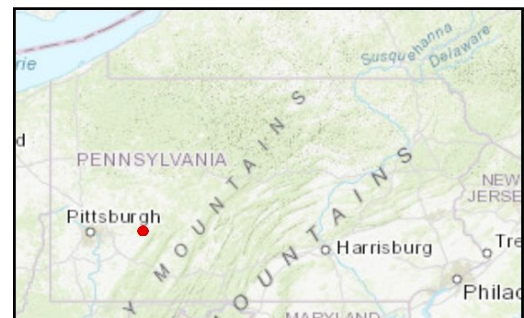
Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Conemaugh River Crossing



- ☐ Project Boundary
- ☐ Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS,



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 jurisdictional 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:

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

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.

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
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 Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Eileen Banach
Company/Business Name: AECOM
Address: 10 Orms Street
City, State, Zip: Providence, RI 02904
Phone: (401) 854-2802 Fax: ()
Email: eileen.banach@aecom.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

2/24/2020

date