



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

August 14, 2020

Kevin S. White | P.E.
Environmental Group Manager
PADEP Regional Permit Coordination Office
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17101

**RE: LEIDY SOUTH PROJECT – CLINTON, LUZERNE AND LYCOMING COUNTIES
TECHNICAL DEFICIENCY #2 RESPONSE SUBMITTAL; WATER OBSTRUCTION &
ENCROACHMENT PERMIT; PADEP APPLICATION NO. E1883219-001 (HENSEL
REPLACEMENT AND HILLTOP LOOP), E4083219-001 (COMPRESSOR STATION 607),
E4183219-001 (BENTON LOOP)**

Dear Mr. White;

On September 27, 2019, Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc., submitted three Chapter 105 Joint Permit Applications to the Pennsylvania Department of Environmental Protection (PADEP) for impacts to regulated resources associated with the proposed Leidy South Project (Project) located in Clinton, Luzerne and Lycoming Counties. The PADEP determined the submissions to be administratively complete on December 13, 2019 and issued technical deficiencies on April 3, 2020. Responses to the technical deficiencies were submitted on June 1, 2020. Additional technical deficiencies were issued on August 6, 2020.

Transco has responded to the additional technical deficiencies in the enclosed Attachment A - Chapter 105 Technical Deficiency #2 Comment / Response document. This document outlines the DEP technical comment, Transco's response and applicable permit requirement sections that are being updated to address the comment. An electronic copy of the Chapter 105 Permit submittal updates by county has been uploaded onto PADEP's OnBase website.

It is our hope that the information as provided will allow you to complete your review in accordance with your regulations and issue the requested Chapter 105 Water Obstruction and Encroachment Permit. If you require any additional information that will facilitate your review, please do not hesitate to contact Shauna Akers at (713) 215-3012 or at Shauna.Akers@williams.com, or Josh Henry at (412) 713-0485 or at Josh.Henry@williams.com.

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Sincerely,

A handwritten signature in black ink, appearing to read "Joseph Dean". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Joseph Dean

Manager, Environmental Health and Safety

Enclosures

Attachment A - Chapter 105 Technical Deficiency #2 Comment – Response

ATTACHMENT A
CHAPTER 105 ADDITIONAL TECHNICAL DEFICIENCY
COMMENT / RESPONSE

Attachment A - Chapter 105 Technical Deficiency #2 Comment / Response

Comment Number	DEP Technical Comment	Requirement	Transco Response
All Counties			
1	Please reference the invasive species management plan in your restoration monitoring plan (as referenced in the Transco Procedures) and add as an appendix. [25 Pa. Code § 105.21(a)(1)]	L-5	Section S4.D of Requirement L-5 Module S4 has been updated to include reference to the invasive species management plan. In addition, an appendix has been added refernece the Invasive Species Management Plan.
Change	Change	Requirement	Reason
1_LSP	Construction Spill Plan	L-4	Updated Appendix S3-4 Construction Spill Plan to include DEP and County Conservation District contract information per ESCGP-3 comments.
2_LSP	Table S1.A.1-1 in Module S1	L-2	Updated Table S1.A.1-1 in Module S1 per comment 6.
Clinton County (Hensel Replacement and Hilltop Loop)			
2	Please verify that W1-T1 has a temporary impact of "Mat" on the ARIT. [25 Pa. Code § 105.21(a)(1)]	J-2	One of the impact rows associated with W1-T1-HR has been updated to include the "Matting" callout in the "Work Proposed" column.
3	Stream S1-T2 HL does not appear on summary tables, even though a Rapid Assessment was completed for this stream. Please verify the Riparian Condition Assessment Summary Table and Table S2.D.1-1. [25 Pa. Code § 105.21(a)(1)]	L-3	Attachment C of the Hilltop Loop Wetland and Watercourse Delineation Report has been updated to include Stream S1-T2 HL. This was incorrectly labeled as S9-T6 HL in the previous submission. In addition, Table S2.D.1-1 has been updated with the Riparian Condition Assessment Summary for S1-T2-HL.
4	There appears to be a Hensel Replacement stream on Hilltop Loop Table 3: Wetland Condition Assessment Summary Table. Please verify whether this should be W11-T5 HL instead. [25 Pa. Code § 105.21(a)(1)]	L-3	Attachment C of the Hilltop Loop Wetland and Watercourse Delineation Report has been updated to include W11-T5 HL. This was incorrectly labeled as W4-T5 HR in the previous submission. In addition, the correct "HL" modifier was updated for Assessment Area Numbers 2 & 3.
5	W3-T7a-HR and W4-T7a-HR are still labeled as PEM on Sheet 6 of 39 of the E&S Drawings. Please revise. [25 Pa. Code § 105.21(a)(1)]	M	W3-T7a-HR and W4-T7a-HR on Sheet 6 of 39 has been updated to be labeled as PFO.
Change	Change	Requirement	Reason
1_CLI	Plan Drawings (Sheet 18 of 22) on Hilltop Loop	M	Updated Rip Rap Stream Bank Stabilization Detail per ESCGP-3 comments.
2_CLI	Typo on length / width column for S1-T4-HL	J-2	The length and width were erroneously switched on the watercourse impact column.
Lycoming County (Benton Loop)			
6	Please verify the watercourse impact numbers. ARIT states 0.96 acres, while the Table S3.A-1 states 0.94 acres of impact. [25 Pa. Code § 105.21(a)(1)]	L-2 & L-4	Table S1.A.1-1 in Module S1 has been updated in all county permit applications. Table S1.B.4-1 in Module S1 & Table S3.A-1 is Module S3 has been updated in the Lycoming County (Benton Loop) permit application.

7	The W13-T16 vs W13-T6 typo still shows up on the ARIT. Correct throughout. [25 Pa. Code § 105.21(a)(1)]	J-2	The ARIT has been updated to correct the typo and outline "W13-T6" as the appropriate wetland name.
8	Please verify, wetland W14 and W13 are not listed in Table S2.D.2-1 Wetland Resource Classification. [25 Pa. Code § 105.21(a)(1)]	L-3	W14-T6 & W13-T6 are outlined on Page 9. The overall Table S2.D.2-1 is outlined on Pages 9-11.
Change	Change	Requirement	Reason
1_LYC	Attachment C of E&S-SR Plan Narrative and Plan Drawings (Sheets 21 & 22A)	M	Updated CFS worksheets, Anti-seep collar detail and channel worksheets per ESCGP-3 comments



Transcontinental Gas Pipe Line Company, LLC

JOINT PERMIT APPLICATION

***Leidy South Project – Compressor Station 607
Fairmont Township, Luzerne County, Pennsylvania***

Submitted to:

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

***SEPTEMBER 2019
(REVISED AUGUST 2020)***

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Public Water Supply Report

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT A-1
JOINT PERMIT APPLICATION FORM**



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

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

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

AGENCY USE ONLY

Application ID# (Assigned by DEP) _____	RECEIVED DATE _____	CHECK NO. _____
Program Application No. _____	REQUIRED APP. FEE _____	AMOUNT \$ _____

SECTION A. APPLICATION TYPE STANDARD SMALL PROJECTS

SECTION B. APPLICANT IDENTIFIER

Applicant Name Transcontinental Gas Pipe Line Company, LLC	Employer ID# (EIN) 74-1079400
Consulting Firm WHM Consulting, LLC (dba WHM Consulting, Inc.)	Employer ID# (EIN) 26-3468094

SECTION C. PROJECT LOCATION DATA AND STATUS

Name of stream and/or body of water and Chapter 93 designation.
Wetlands ("Other and "Exceptional Value")
Corps District where project will occur.
 Pittsburgh (Ohio River Basin) Baltimore (Susquehanna River Basin) Philadelphia (Delaware River Basin)

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

Indicate location of project: Latitude 41°17'52.976"N; Longitude 76°13'21.870"W

Project type, purpose and need: Transco is proposing the Leidy South Project (Project). The Project is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. The Project will provide Transco's customers and the markets they serve with greatly enhanced access to Marcellus and Utica Shale supplies providing users, such as power generators, access to clean, abundant, and lower priced natural gas as a better alternative to coal and oil. Access to the Marcellus and Utica Shale production areas is currently constrained on days where natural gas demand is the highest on the interstate pipeline systems by existing pipeline capacity. By increasing gas supply access at the River Road Regulator Station, the Project will support overall reliability and diversification of energy infrastructure along the Atlantic seaboard. The increased Project capacity further diversifies energy infrastructure by increasing the system's ability to meet growing northeast and southeast demand from the Marcellus and Utica in addition to gas historically produced in other areas of the United States. Moreover, the Project will benefit the public by promoting competitive markets and increasing the security of natural gas supplies to major delivery points serving the Atlantic seaboard.

HAS ANY PORTION OF PROPOSED PROJECT BEEN AUTHORIZED? yes no _____ date authorized
If yes, attach description of those portions of the project that have been authorized and identify dates of authorization.

SECTION D. AQUATIC RESOURCE IMPACT TABLE

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

If NO, indicate the information not included and the reason. Also attach a completed [Aquatic Resource Impact Table \(3150-PM-BWEW0557\)](#) worksheet or equivalent.

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

SECTION E. COMPLIANCE REVIEW

Yes No

 Is the applicant (owner and/or operator) currently in violation of any permits issued by the Department?
If yes, please provide:

1. Permit Number: _____
2. Nature of the violation (if any): _____

3. Status of violation (i.e., schedule for compliance, etc.): _____

SECTION F. APPLICATION COMPLETENESS CHECKLIST

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

REQUIREMENT	Applicant Entry	DEP Use Only
a. GIF and permit application properly signed, sealed and witnessed	*Y	
b. Application Fee & Worksheet enclosed (see Section G.)	*Y	
c. Copies and proof of receipt - Act 14 notification - Acts 67/68/127	*Y	
d. Cultural Resource Notice (Notice, return receipt and PHMC review letter, as appropriate)	*Y	
e. PASPGP-5 Reporting Criteria Checklist	*Y	
f. Bog Turtle Habitat Screening (copy of "No Effect" determination from the Army Corps of Engineers OR copy of documented clearance from the US Fish and Wildlife Service)	*N/A	
g. Pennsylvania Natural Diversity Inventory (signed PNDI Receipt showing Avoidance Measures or Potential Impacts and proof of delivery to the appropriate jurisdictional agency(ies) where further coordination is required, as appropriate)	*Y	
h. Plans (site plan including cross sections and profiles for Subsections 151, 191, 231, 261)	*Y	
i. Location map	Y	
j. Project description narrative including PNDI avoidance measures (if applicable) AND Aquatic Resource Impact Table	*Y *Y	
k. Color photographs with map showing location taken	*Y	
l. Environmental Assessment form	*Y	
m. Erosion and Sediment Control Plan and approval letter	Y	
n. Hydrologic and hydraulic analysis	Y	
o. Stormwater Management Analysis with consistency letter	Y	
p. Floodplain Management Analysis with consistency letter	Y	
q. Risk Assessment	Y	
r. Professional engineer's seal and certification	Y	
s. Alternative analysis	Y	
t. Mitigation plan	Y	

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

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

SECTION H. ADJOINING PROPERTY OWNERS

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

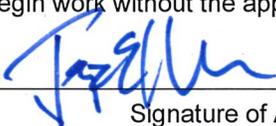
<u>NAME</u>	<u>ADDRESS</u>
See A-3 – Adjoining Property Owners List	
_____	_____
_____	_____
_____	_____
_____	_____

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

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

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

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

 _____ Signature of Applicant/Owner	9/19/2019 _____ Date
JOSEPH E. DEAN, MGR - PERMITS _____ Typed / Printed Name & Title of Applicant/Owner	
 _____ Signature of Witness	SEAL
Shauna Akers, Env. Specialist _____ Typed / Printed Name & Title of Witness	

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT A-2
GENERAL INFORMATION FORM**

Form



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

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

CLIENT INFORMATION

DEP Client ID# 82494	Client Type / Code LLC		
Organization Name or Registered Fictitious Name Transcontinental Gas Pipe Line Company, LLC.		Employer ID# (EIN) 74-1079400	Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix SSN
Additional Individual Last Name	First Name	MI	Suffix SSN
Mailing Address Line 1 2800 Post Oak Blvd, Level 11		Mailing Address Line 2	
Address Last Line – City Houston		State PA	ZIP+4 77056
Client Contact Last Name Dean		First Name Joseph	MI Suffix
Client Contact Title Environmental Manager		Phone 713-215-3427	Ext
Email Address Joesph.Dean@williams.com		FAX	

SITE INFORMATION

DEP Site ID#	Site Name Leidy South Project - Compressor Station 607		
EPA ID#	Estimated Number of Employees to be Present at Site		
Description of Site Rural, agricultural and forested area adjacent to/overlapping an existing natural gas pipeline right-of-way.			
County Name Luzerne	Municipality Fairmount	City <input type="checkbox"/>	Boro <input type="checkbox"/>
		Twp <input checked="" type="checkbox"/>	State
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>
		Twp <input type="checkbox"/>	State
Site Location Line 1 78 Maransky Road		Site Location Line 2	
Site Location Last Line – City Sweet Valley		State PA	ZIP+4 18656
Detailed Written Directions to Site From Dallas, PA: At traffic circle take the 3 rd exit and stay on PA-415 North for 1.7 miles. Turn left on PA-118 West and go 13.3 miles. Turn left onto Jackson Hill Road/Maransky Road go 0.4 mile, destination will be on the left.			
Site Contact Last Name Dean	First Name Joseph	MI	Suffix
Site Contact Title Environmental Manager		Site Contact Firm Transcontinental Gas Pipe Line Company, LLC	
Mailing Address Line 1 2800 Post Oak Blvd., Level 11		Mailing Address Line 2	

Mailing Address Last Line – City Houston			State TX	ZIP+4 77056
Phone 713-215-3427	Ext	FAX	Email Address Joseph.Dean@williams.com	
NAICS Codes (Two- & Three-Digit Codes – List All That Apply) 221			6-Digit Code (Optional)	
Client to Site Relationship OWN				

FACILITY INFORMATION

Modification of Existing Facility		Yes	No
1.	Will this project modify an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Will this project involve an addition to an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>If "Yes", check all relevant facility types and provide DEP facility identification numbers below.</i>			
Facility Type	DEP Fac ID#	Facility Type	DEP Fac ID#
<input type="checkbox"/> Air Emission Plant	_____	<input type="checkbox"/> Industrial Minerals Mining Operation	_____
<input type="checkbox"/> Beneficial Use (water)	_____	<input type="checkbox"/> Laboratory Location	_____
<input type="checkbox"/> Blasting Operation	_____	<input type="checkbox"/> Land Recycling Cleanup Location	_____
<input type="checkbox"/> Captive Hazardous Waste Operation	_____	<input type="checkbox"/> Mine Drainage Trmt/LandRecyProjLocation	_____
<input type="checkbox"/> Coal Ash Beneficial Use Operation	_____	<input type="checkbox"/> Municipal Waste Operation	_____
<input type="checkbox"/> Coal Mining Operation	_____	<input type="checkbox"/> Oil & Gas Encroachment Location	_____
<input type="checkbox"/> Coal Pillar Location	_____	<input type="checkbox"/> Oil & Gas Location	_____
<input type="checkbox"/> Commercial Hazardous Waste Operation	_____	<input type="checkbox"/> Oil & Gas Water Poll Control Facility	_____
<input type="checkbox"/> Dam Location	_____	<input type="checkbox"/> Oil & Gas Wastewater Storage Impoundment	_____
<input type="checkbox"/> Deep Mine Safety Operation -Anthracite	_____	<input type="checkbox"/> Public Water Supply System	_____
<input type="checkbox"/> Deep Mine Safety Operation -Bituminous	_____	<input type="checkbox"/> Radiation Facility	_____
<input type="checkbox"/> Deep Mine Safety Operation -Ind Minerals	_____	<input type="checkbox"/> Residual Waste Operation	_____
<input type="checkbox"/> Encroachment Location (water, wetland)	_____	<input type="checkbox"/> Storage Tank Location	_____
<input type="checkbox"/> Erosion & Sediment Control Facility	_____	<input type="checkbox"/> Water Pollution Control Facility	_____
<input type="checkbox"/> Explosive Storage Location	_____	<input type="checkbox"/> Water Resource	_____
		<input type="checkbox"/> Other:	_____

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
41.298049, -76.222742	41	17	53	76	13	22
Horizontal Accuracy Measure	Feet		--or--	Meters		
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input checked="" type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code	GISDR					
Reference Point Code	CNTAR					
Altitude	Feet	1310	--or--	Meters		
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input checked="" type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code	TOPO					
Geometric Type Code	POINT					
Data Collection Date	08/16/19					
Source Map Scale Number	1	Inch(es)	=	24,000	Feet	
	--or--	Centimeter(s)	=	Meters		

PROJECT INFORMATION

Project Name Leidy South Project - Compressor Station 607			
Project Description Compressor Station 607 will consist of installing two Solar Titan 130 gas driven turbine compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres. Because the Project is governed by the Natural Gas Act, the Federal Energy Regulatory Commission (FERC) has exclusive jurisdiction over siting; therefore, local zoning is preempted.			
Project Consultant Last Name Clark	First Name Kevin	MI M.	Suffix

Project Consultant Title Project Manager		Consulting Firm WHM Consulting, Inc.	
Mailing Address Line 1 2525 Green Tech Drive Suite B		Mailing Address Line 2	
Address Last Line – City State College		State PA	ZIP+4 16841
Phone 814-689-1560	Ext	FAX 814-689-1557	Email Address kevinc@whmgroup.com
Time Schedules Winter 2020/2021	Project Milestone (Optional) Commence Construction		
December 1, 2021	In service Date		

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** Yes No

2. **Is your project funded by state or federal grants?** Yes No
Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
 Aspect of Project Related to Grant _____
 Grant Source: _____
 Grant Contact Person: _____
 Grant Expiration Date: _____

3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** Yes No
Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
 If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

- Note:** Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.
1. **Is there an adopted county or multi-county comprehensive plan?** Yes No

 2. **Is there an adopted municipal or multi-municipal comprehensive plan?** Yes No

 3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** Yes No
Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
 If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.

 4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** Yes No
 If zoning approval has been received, attach documentation.

 5. **Have you attached Municipal and County Land Use Letters for the project?** Yes No

COORDINATION INFORMATION

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

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

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

1.0	Is this a coal mining project? If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
1.1	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.2	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.3	Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.4	For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.5	Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.6	Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.0	Is this a non-coal (industrial minerals) mining project? If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
2.1	Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.2	Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.3	Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.4	For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.5	Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

3.0	Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well? If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
3.1	Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.2	Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system? If "Yes", discuss in <i>Project Description</i> .	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.3	Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
4.0	Will the project involve a construction activity that results in earth disturbance? If "Yes", specify the total disturbed acreage. 4.0.1 Total Disturbed Acreage 18.25	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.0	Does the project involve any of the following? If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.1	Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.2	Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.3	Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
6.0	Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
7.0	Will the project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
8.0	Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations? If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the <i>Project Description</i> , where applicable. 8.0.1 Estimated Proposed Flow (gal/day)	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0	Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0.1	Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
10.0	Is this project for the beneficial use of biosolids for land application within Pennsylvania? If "Yes" indicate how much (i.e. gallons or dry tons per year). 10.0.1 Gallons Per Year (residential septage) _____ 10.0.2 Dry Tons Per Year (biosolids) _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
11.0	Does the project involve construction, modification or removal of a dam? If "Yes", identify the dam. 11.0.1 Dam Name _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No

12.0	Will the project interfere with the flow from, or otherwise impact, a dam? If "Yes", identify the dam.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
12.0.1	Dam Name				
13.0	Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)? If "Yes", identify each type of emission followed by the amount of that emission.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
13.0.1	Enter all types & amounts of emissions; separate each set with semicolons.	Summary of Compressor Station 607 Operational Potential to Emit (PTE): NOx - 54.83; CO - 47.45; VOC - 13.43; SO2 - 5.87; PM10 - 11.44; PM2.5 - 11.44; Single HAP - 5.01; Total HAP - 5.6; CO2e - 208,400.1 = Annual (tpy)			
14.0	Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year? If "Yes", check all proposed sub-facilities.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
14.0.1	Number of Persons Served	_____			
14.0.2	Number of Employee/Guests	_____			
14.0.3	Number of Connections	_____			
14.0.4	Sub-Fac: Distribution System	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.5	Sub-Fac: Water Treatment Plant	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.6	Sub-Fac: Source	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.7	Sub-Fac: Pump Station	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.8	Sub Fac: Transmission Main	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.9	Sub-Fac: Storage Facility	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
15.0	Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0	Is your project to be served by an existing public water supply? If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0.1	Supplier's Name	_____			
16.0.2	Letter of Approval from Supplier is Attached	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
17.0	Will this project involve a new or increased drinking water withdrawal from a stream or other water body? If "Yes", should reference both Water Supply and Watershed Management.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
17.0.1	Stream Name	_____			
18.0	Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste? If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
18.0.1	Type & Amount	_____			
19.0	Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0	Does your project involve installation of a field constructed underground storage tank? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0.1	Enter all substances & capacity of each; separate each set with semicolons.	_____			
21.0	Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
21.0.1	Enter all substances & capacity of each; separate each set with semicolons.	_____			

22.0 Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

22.0.1 Enter all substances & capacity of each; separate each set with semicolons.

23.0 Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

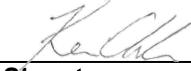
23.0.1 Enter all substances & capacity of each; separate each set with semicolons.

24.0 Will the intended activity involve the use of a radiation source? Yes No

CERTIFICATION

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

Type or Print Name Kevin M. Clark



Project Manager

08/28/2019

Signature

Title

Date

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT A-3
ADJOINING LANDOWNER LIST**

LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
REQUIRMENT A-3 ADJOINING PROPERTY OWNERS

Contact Name	Contact Organization	PO Box	Address Line 1	Address Line 2	City	Zip	Zip 2	State
Bertinelli, Christopher A. Et Al.			7 Jackson Hill Road		Sweet Valley	18656		PA
Doyle, Peter and Mary Evans		P. O. Box 155			Sweet Valley	18656		PA
Farrow, Trisha L.			18 Maransky Road		Sweet Valley	18656		PA
Forgach, John and Louise			236 Rimrock Drive		Evanston	82930		WY
Harrison, Carl G.			30 Jackson Hill Road		Sweet Valley	18656		PA
	Hayfield Associates, LLC.		700 Scott St.		Wilkes Barre	18705		PA
Krolick, Steven A. and Tammy K.			74 Giza Road		Benton	17814		PA
Meyers, Mark and Patricia			19 Fairview Lane		Mechanicville	12118		NY
Roman, John J. and Theresa			17 Maransky Road		Sweet Valley	18656		PA
Rosengrant, Alan			4 Bridge Out Road		Sweet Valley	18656		PA
Shaw, Lawrence M.			78 Maransky Road		Sweet Valley	18656		PA
Thomas, Charles Jr. and Cheryl			995 State Route 118		Sweet Valley	18656		PA
Wildoner, John & Joanna			94 Jackson Hill Road		Sweet Valley	18656		PA

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT A-4
DELEGATION OF SIGNATURE AUTHORITY**



GAS PIPELINE — TRANSCO

Land, GIS & Permits
2800 Post Oak Boulevard, Level 11
Houston, Texas 77056

September 10, 2019

*Via Certified Mail
Return Receipt Requested*

Mr. Patrick McDonnell
Acting Secretary
Pennsylvania Department of Environmental Protection
400 Market Street
Harrisburg, PA 17101

Dear Mr. McDonnell:

Transcontinental Gas Pipe Line Company, LLC, a Delaware limited liability company, (Transco) hereby notifies the Department of the Delegation of Signature Authority with respect to the Responsible Official Definition provided under the provisions of NEPA (42 USCS 4321, et seq. and 40 CFR 6 – implementation thereof). This letter supersedes all previous letters denoting Delegation of Signature Authority.

Persons holding the position of Director, Manager, Environmental Specialist, Environmental Scientist, or Engineer within Transco are recognized as having the ability to perform similar policy or decision making functions as myself for the Company. I hereby Delegate such signing authority to those persons.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Hallam". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Scott Hallam
Senior Vice President, Atlantic-Gulf
Transcontinental Gas Pipe Line Company, LLC

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT B
CHAPTER 105 FEE CALCULATION WORKSHEET

PART ONE: WATER OBSTRUCTIONS AND ENCROACHMENTS

SECTION A. APPLICATION FEES

WATER OBSTRUCTION AND ENCROACHMENT PERMIT (Joint Permit Application)

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

<input checked="" type="checkbox"/> Administrative Filing Fee ¹		\$ 1,750	+	
<input checked="" type="checkbox"/> Temporary Disturbance (\$400/0.1ac)	0.4 acres x \$4,000 =	\$ 1,600	+	
<input type="checkbox"/> Permanent Disturbance (\$800/0.1ac)	0.0 acres x \$8,000 =	\$ _____		= \$ 3,350

WO&E FEE subtotal (a) \$ 3,350

GENERAL PERMIT(S) (select activity/structure(s) below, see page 4 for “#” explanation)

Some activities or structures within a project requiring an Individual Water Obstruction and Encroachment Permit may qualify for an accumulation of General Permit fees, please mark the corresponding fee(s) below but not the box above indicating a General Permit.

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

GP(s) FEE subtotal (b) \$ 0

PART ONE: SECTION A. APPLICATION FEE(S) subtotal (a+b=c) \$ 3,350

SECTION B. OTHER FEES

<input type="checkbox"/> Environmental Assessment for Waived Activities (§105.13(c)(2)(iv))		\$ 500	\$ _____
<input type="checkbox"/> Amendment to Water Obstruction and Encroachment Permit			
<input type="checkbox"/> Major Amendment ¹		\$ 500	+
<input type="checkbox"/> Temporary Disturbance	_____ acres x \$4,000 =	\$ _____	+
<input type="checkbox"/> Permanent Disturbance	_____ acres x \$8,000 =	\$ _____	= \$ _____
<input type="checkbox"/> Minor Amendment		\$ 250	\$ _____

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

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

PART ONE: FEE(S) TOTAL (c+d=e) \$ 3,350

DEP USE ONLY

FEE TOTAL: _____	Permit / Authorization Number (s): _____
Correct Amount: _____	Check #: _____
Check Amount: _____	Payable to: _____

Fee of \$4,150 already paid. Form was updated with revised impacts for consistency

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT C
ACT 14 NOTIFICATIONS AND RECEIPTS



September 17, 2019

UPS TRACKING (1Z8797VV0395521681)

Fairmount Township Supervisors
383 Municipal Road
Benton, PA 17814

Re: Leidy South Project – Compressor Station 607
Pennsylvania Acts 14, 67, 68, and 127 Notification
Fairmount Township, Luzerne County, Pennsylvania

Dear Fairmount Township Supervisors:

The purpose of this notice is to inform you of Transcontinental Gas Pipe Line Company, LLC's (Transco), a subsidiary of Williams Partners L.P. (Williams), intent to submit a Chapter 105 Water Obstruction and Encroachment Permit to the Pennsylvania Department of Environmental Protection (PADEP) in accordance with Acts 14, 67, 68, and 127 and the Pennsylvania Municipalities Planning Code for the following project:

1) Project Name: Leidy South Project – Compressor Station 607 (Project)

2) Project Description: The Project is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Transco is proposing the Leidy South Project – Compressor Station 607 (Project). The Compressor Station will consist of the installing two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres.

Subject to FERC approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

3) Applicant Name: Transcontinental Gas Pipe Line Company, LLC's (Transco), a subsidiary of Williams Partners L.P. (Williams)

4) Applicant Contact: Joseph Dean
Environmental Manager
2800 Post Oak Blvd, Level 11
Houston, TX 77056
(713) 215-3427

5) Site Location: The proposed Project is located on the Sweet Valley, Pennsylvania, 7.5 Minute USGS quadrangle. The Project is co-located with an existing pipeline right-of-way with rural, agricultural and forested area adjacent to the existing pipeline right-of-way. Center of Project: 41°17'52.976"N; - 76°13'21.870"W

6) Municipality / County: Fairmount Township, Luzerne County

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

"Acts 67 and 68, which amended the Municipalities Planning Code to support sound land use practices and planning efforts, direct state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure and specify that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as described in Sections 619.2 and 1105 of the Municipalities Planning Code. Enclosed are a General Permit Registration Form (GIF) and Project Location Map that we have completed for this project. DEP invites you to review the attached GIF and comment on the land use aspects of this project; please be specific to DEP when identifying any areas of conflict. If you wish to submit comments for DEP to consider in a land use review of this project, you must respond within 30 days to the DEP regional office listed below. If there are no land use comments received by the end of the comment period, DEP will assume that there are no substantive land use conflicts and proceed with the normal application review process."

Please submit any comments concerning this project within 30 days from date of receipt of this letter to the DEP Regional Permit Coordination Office at:

PADEP Regional Permit Coordination Office Rachel Carson State Office Building 400 Market Street Harrisburg, PA 17101

For more information about this land use review process, please visit www.depweb.state.pa.us, (keyword: Land Use Reviews).

Sincerely,



Kevin M. Clark, PWS
WHM Consulting, Inc.

cc: Joseph Dean, Transco

Enclosures: PADEP GIF Form
Project Location Map

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

GENERAL INFORMATION FORM

Form



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

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

CLIENT INFORMATION

DEP Client ID# 82494	Client Type / Code LLC		
Organization Name or Registered Fictitious Name Transcontinental Gas Pipe Line Company, LLC.		Employer ID# (EIN) 74-1079400	Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix SSN
Additional Individual Last Name	First Name	MI	Suffix SSN
Mailing Address Line 1 2800 Post Oak Blvd, Level 11		Mailing Address Line 2	
Address Last Line – City Houston		State PA	ZIP+4 77056
Client Contact Last Name Dean		First Name Joseph	MI Suffix
Client Contact Title Environmental Manager		Phone 713-215-3427	Ext
Email Address Joesph.Dean@williams.com		FAX	

SITE INFORMATION

DEP Site ID#	Site Name Leidy South Project - Compressor Station 607		
EPA ID#	Estimated Number of Employees to be Present at Site		
Description of Site Rural, agricultural and forested area adjacent to/overlapping an existing natural gas pipeline right-of-way.			
County Name Luzerne	Municipality Fairmount	City <input type="checkbox"/>	Boro <input type="checkbox"/>
		Twp <input checked="" type="checkbox"/>	State
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>
		Twp <input type="checkbox"/>	State
Site Location Line 1 78 Maransky Road		Site Location Line 2	
Site Location Last Line – City Sweet Valley		State PA	ZIP+4 18656
Detailed Written Directions to Site From Dallas, PA: At traffic circle take the 3 rd exit and stay on PA-415 North for 1.7 miles. Turn left on PA-118 West and go 13.3 miles. Turn left onto Jackson Hill Road/Maransky Road go 0.4 mile, destination will be on the left.			
Site Contact Last Name Dean	First Name Joseph	MI	Suffix
Site Contact Title Environmental Manager		Site Contact Firm Transcontinental Gas Pipe Line Company, LLC	
Mailing Address Line 1 2800 Post Oak Blvd., Level 11		Mailing Address Line 2	

Mailing Address Last Line – City Houston			State TX	ZIP+4 77056
Phone 713-215-3427	Ext	FAX	Email Address Joseph.Dean@williams.com	
NAICS Codes (Two- & Three-Digit Codes – List All That Apply) 221			6-Digit Code (Optional)	
Client to Site Relationship OWN				

FACILITY INFORMATION

Modification of Existing Facility		Yes	No
1.	Will this project modify an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Will this project involve an addition to an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>If "Yes", check all relevant facility types and provide DEP facility identification numbers below.</i>			
Facility Type	DEP Fac ID#	Facility Type	DEP Fac ID#
<input type="checkbox"/> Air Emission Plant	_____	<input type="checkbox"/> Industrial Minerals Mining Operation	_____
<input type="checkbox"/> Beneficial Use (water)	_____	<input type="checkbox"/> Laboratory Location	_____
<input type="checkbox"/> Blasting Operation	_____	<input type="checkbox"/> Land Recycling Cleanup Location	_____
<input type="checkbox"/> Captive Hazardous Waste Operation	_____	<input type="checkbox"/> Mine Drainage Trmt/LandRecyProjLocation	_____
<input type="checkbox"/> Coal Ash Beneficial Use Operation	_____	<input type="checkbox"/> Municipal Waste Operation	_____
<input type="checkbox"/> Coal Mining Operation	_____	<input type="checkbox"/> Oil & Gas Encroachment Location	_____
<input type="checkbox"/> Coal Pillar Location	_____	<input type="checkbox"/> Oil & Gas Location	_____
<input type="checkbox"/> Commercial Hazardous Waste Operation	_____	<input type="checkbox"/> Oil & Gas Water Poll Control Facility	_____
<input type="checkbox"/> Dam Location	_____	<input type="checkbox"/> Oil & Gas Wastewater Storage Impoundment	_____
<input type="checkbox"/> Deep Mine Safety Operation -Anthracite	_____	<input type="checkbox"/> Public Water Supply System	_____
<input type="checkbox"/> Deep Mine Safety Operation -Bituminous	_____	<input type="checkbox"/> Radiation Facility	_____
<input type="checkbox"/> Deep Mine Safety Operation -Ind Minerals	_____	<input type="checkbox"/> Residual Waste Operation	_____
<input type="checkbox"/> Encroachment Location (water, wetland)	_____	<input type="checkbox"/> Storage Tank Location	_____
<input type="checkbox"/> Erosion & Sediment Control Facility	_____	<input type="checkbox"/> Water Pollution Control Facility	_____
<input type="checkbox"/> Explosive Storage Location	_____	<input type="checkbox"/> Water Resource	_____
		<input type="checkbox"/> Other:	_____

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
41.298049, -76.222742	41	17	53	76	13	22
Horizontal Accuracy Measure	Feet		--or--	Meters		
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input checked="" type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code	GISDR					
Reference Point Code	CNTAR					
Altitude	Feet	1310	--or--	Meters		
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input checked="" type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code	TOPO					
Geometric Type Code	POINT					
Data Collection Date	08/16/19					
Source Map Scale Number	1	Inch(es)	=	24,000	Feet	
	--or--	Centimeter(s)	=	Meters		

PROJECT INFORMATION

Project Name Leidy South Project - Compressor Station 607			
Project Description Compressor Station 607 will consist of installing two Solar Titan 130 gas driven turbine compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres. Because the Project is governed by the Natural Gas Act, the Federal Energy Regulatory Commission (FERC) has exclusive jurisdiction over siting; therefore, local zoning is preempted.			
Project Consultant Last Name Clark	First Name Kevin	MI M.	Suffix

Project Consultant Title Project Manager		Consulting Firm WHM Consulting, Inc.	
Mailing Address Line 1 2525 Green Tech Drive Suite B		Mailing Address Line 2	
Address Last Line – City State College		State PA	ZIP+4 16841
Phone 814-689-1560	Ext	FAX 814-689-1557	Email Address kevinc@whmgroup.com
Time Schedules Winter 2020/2021	Project Milestone (Optional) Commence Construction		
December 1, 2021	In service Date		

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** Yes No

2. **Is your project funded by state or federal grants?** Yes No
Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
 Aspect of Project Related to Grant _____
 Grant Source: _____
 Grant Contact Person: _____
 Grant Expiration Date: _____

3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** Yes No
Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
 If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

- Note:** Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.
1. **Is there an adopted county or multi-county comprehensive plan?** Yes No

 2. **Is there an adopted municipal or multi-municipal comprehensive plan?** Yes No

 3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** Yes No
Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
 If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.

 4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** Yes No
 If zoning approval has been received, attach documentation.

 5. **Have you attached Municipal and County Land Use Letters for the project?** Yes No

COORDINATION INFORMATION

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

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

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

1.0	Is this a coal mining project? If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
1.1	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.2	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.3	Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.4	For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.5	Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.6	Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.0	Is this a non-coal (industrial minerals) mining project? If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
2.1	Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.2	Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.3	Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.4	For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.5	Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

3.0	Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well? If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
3.1	Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.2	Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system? If "Yes", discuss in <i>Project Description</i> .	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.3	Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
4.0	Will the project involve a construction activity that results in earth disturbance? If "Yes", specify the total disturbed acreage. 4.0.1 Total Disturbed Acreage 18.25	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.0	Does the project involve any of the following? If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.1	Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.2	Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.3	Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
6.0	Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
7.0	Will the project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
8.0	Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations? If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the <i>Project Description</i> , where applicable. 8.0.1 Estimated Proposed Flow (gal/day)	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0	Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0.1	Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
10.0	Is this project for the beneficial use of biosolids for land application within Pennsylvania? If "Yes" indicate how much (i.e. gallons or dry tons per year). 10.0.1 Gallons Per Year (residential septage) _____ 10.0.2 Dry Tons Per Year (biosolids) _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
11.0	Does the project involve construction, modification or removal of a dam? If "Yes", identify the dam. 11.0.1 Dam Name _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No

12.0	Will the project interfere with the flow from, or otherwise impact, a dam? If "Yes", identify the dam.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
12.0.1	Dam Name				
13.0	Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)? If "Yes", identify each type of emission followed by the amount of that emission.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
13.0.1	Enter all types & amounts of emissions; separate each set with semicolons.	Summary of Compressor Station 607 Operational Potential to Emit (PTE): NOx - 54.83; CO - 47.45; VOC - 13.43; SO2 - 5.87; PM10 - 11.44; PM2.5 - 11.44; Single HAP - 5.01; Total HAP - 5.6; CO2e - 208,400.1 = Annual (tpy)			
14.0	Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year? If "Yes", check all proposed sub-facilities.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
14.0.1	Number of Persons Served				
14.0.2	Number of Employee/Guests				
14.0.3	Number of Connections				
14.0.4	Sub-Fac: Distribution System	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.5	Sub-Fac: Water Treatment Plant	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.6	Sub-Fac: Source	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.7	Sub-Fac: Pump Station	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.8	Sub Fac: Transmission Main	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.9	Sub-Fac: Storage Facility	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
15.0	Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0	Is your project to be served by an existing public water supply? If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0.1	Supplier's Name				
16.0.2	Letter of Approval from Supplier is Attached	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
17.0	Will this project involve a new or increased drinking water withdrawal from a stream or other water body? If "Yes", should reference both Water Supply and Watershed Management.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
17.0.1	Stream Name				
18.0	Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste? If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
18.0.1	Type & Amount				
19.0	Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0	Does your project involve installation of a field constructed underground storage tank? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0.1	Enter all substances & capacity of each; separate each set with semicolons.				
21.0	Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
21.0.1	Enter all substances & capacity of each; separate each set with semicolons.				

22.0 Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

22.0.1 Enter all substances & capacity of each; separate each set with semicolons.

23.0 Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

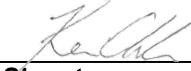
23.0.1 Enter all substances & capacity of each; separate each set with semicolons.

24.0 Will the intended activity involve the use of a radiation source? Yes No

CERTIFICATION

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

Type or Print Name Kevin M. Clark



Project Manager

08/28/2019

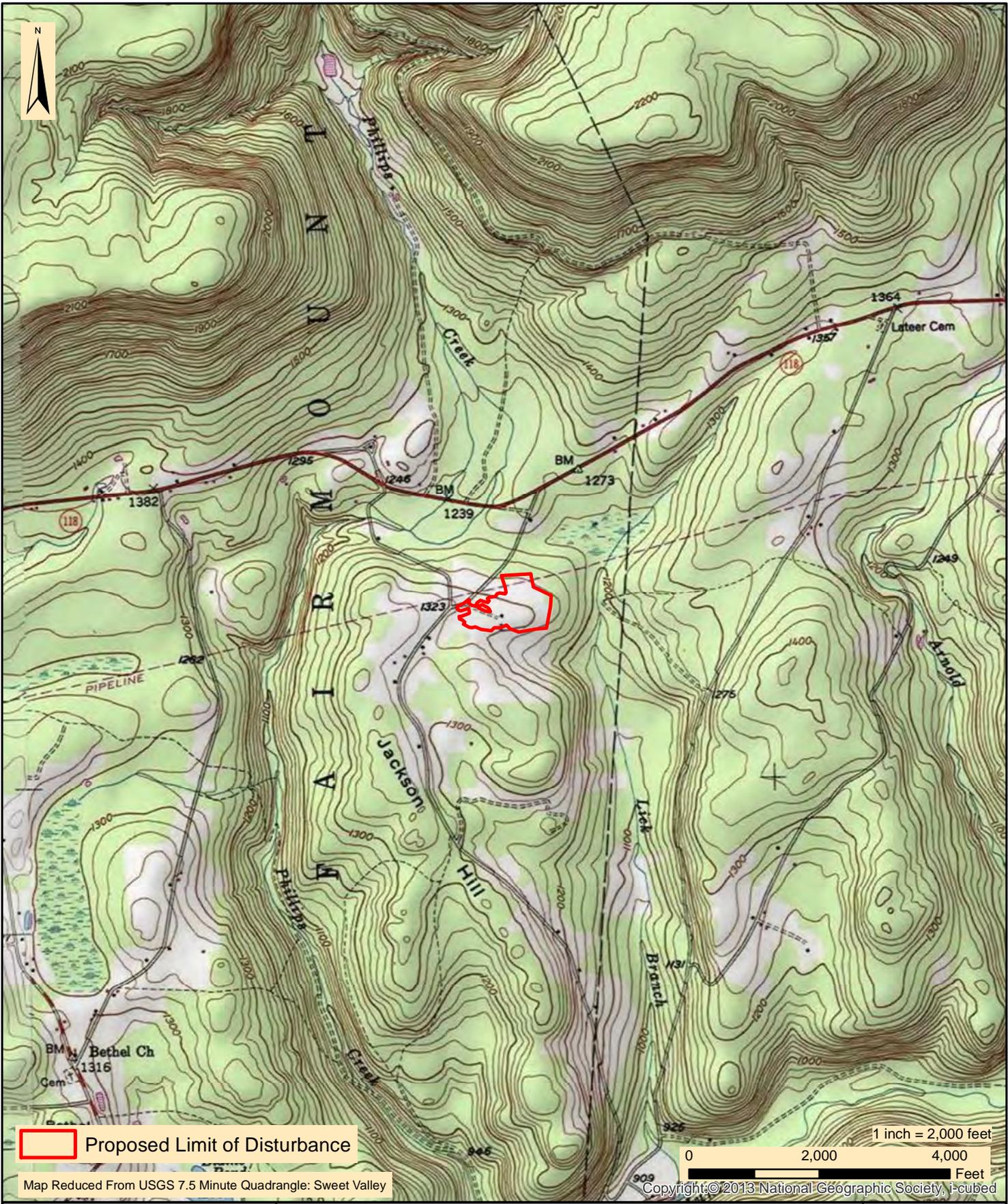
Signature

Title

Date

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

PROJECT LOCATION MAP



Proposed Limit of Disturbance

Map Reduced From USGS 7.5 Minute Quadrangle: Sweet Valley

1 inch = 2,000 feet
 0 2,000 4,000 Feet
 Copyright © 2013 National Geographic Society, i-cubed



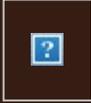
designs, permits, resolutions
consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
 NEW **PROPOSED** COMPRESSOR STATION 607
 PROJECT LOCATION MAP

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

Date:	8/21/2019
WHM Drawing Number:	WILLIAMS204A001
Drawn By:	FTN
Figure Number:	5

From: [UPS Quantum View](#)
To: [Kevin Clark](#)
Subject: UPS Delivery Notification, Tracking Number 1Z8797VV0395521681
Date: Wednesday, September 18, 2019 4:47:43 PM



Your package has been delivered.

Delivery Date: Wednesday, 09/18/2019

Delivery Time: 04:40 PM

At the request of WHM CONSULTING, INC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z8797VV0395521681
Ship To:	TO WHOM IT MAY CONCERN Fairmount Township Supervisors 383 MUNICIPAL RD BENTON, PA 17814 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	FRNT PORCH
Reference Number 1:	Williams 18-186



[Download the UPS mobile app](#)

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September 17, 2019

UPS TRACKING (1Z8797VV0394121463)

Luzerne County Planning Commission
20 North Pennsylvania Avenue
Wilkes-Barre, PA 18711

Re: Leidy South Project – Compressor Station 607
Pennsylvania Acts 14, 67, 68, and 127 Notification
Fairmount Township, Luzerne County, Pennsylvania

Dear Luzerne County Commissioners:

The purpose of this notice is to inform you of Transcontinental Gas Pipe Line Company, LLC's (Transco), a subsidiary of Williams Partners L.P. (Williams), intent to submit a Chapter 105 Water Obstruction and Encroachment Permit to the Pennsylvania Department of Environmental Protection (PADEP) in accordance with Acts 14, 67, 68, and 127 and the Pennsylvania Municipalities Planning Code for the following project:

1) Project Name: Leidy South Project – Compressor Station 607 (Project)

2) Project Description: The Project is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Transco is proposing the Leidy South Project – Compressor Station 607 (Project). The Compressor Station will consist of the installing two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres.

Subject to FERC approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

3) Applicant Name: Transcontinental Gas Pipe Line Company, LLC's (Transco), a subsidiary of Williams Partners L.P. (Williams)

4) Applicant Contact: Joseph Dean
Environmental Manager
2800 Post Oak Blvd, Level 11
Houston, TX 77056
(713) 215-3427

5) Site Location: The proposed Project is located on the Sweet Valley, Pennsylvania, 7.5 Minute USGS quadrangle. The Project is co-located with an existing pipeline right-of-way with rural, agricultural and forested area adjacent to the existing pipeline right-of-way. Center of Project: 41°17'52.976"N; -76°13'21.870"W

6) Municipality / County: Fairmount Township, Luzerne County

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

"Acts 67 and 68, which amended the Municipalities Planning Code to support sound land use practices and planning efforts, direct state agencies to consider comprehensive plans and zoning ordinances when reviewing applications for permitting of facilities or infrastructure and specify that state agencies may rely upon comprehensive plans and zoning ordinances under certain conditions as described in Sections 619.2 and 1105 of the Municipalities Planning Code. Enclosed are a General Permit Registration Form (GIF) and Project Location Map that we have completed for this project. DEP invites you to review the attached GIF and comment on the land use aspects of this project; please be specific to DEP when identifying any areas of conflict. If you wish to submit comments for DEP to consider in a land use review of this project, you must respond within 30 days to the DEP regional office listed below. If there are no land use comments received by the end of the comment period, DEP will assume that there are no substantive land use conflicts and proceed with the normal application review process."

Please submit any comments concerning this project within 30 days from date of receipt of this letter to the DEP Regional Permit Coordination Office at:

PADEP Regional Permit Coordination Office Rachel Carson State Office Building 400 Market Street Harrisburg, PA 17101

For more information about this land use review process, please visit www.depweb.state.pa.us, (keyword: Land Use Reviews).

Sincerely,



Kevin M. Clark, PWS
WHM Consulting, Inc.

cc: Joseph Dean, Transco

Enclosures: PADEP GIF Form
Project Location Map

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

GENERAL INFORMATION FORM

Form



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

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

CLIENT INFORMATION

DEP Client ID# 82494	Client Type / Code LLC		
Organization Name or Registered Fictitious Name Transcontinental Gas Pipe Line Company, LLC.		Employer ID# (EIN) 74-1079400	Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix SSN
Additional Individual Last Name	First Name	MI	Suffix SSN
Mailing Address Line 1 2800 Post Oak Blvd, Level 11		Mailing Address Line 2	
Address Last Line – City Houston		State PA	ZIP+4 77056
Client Contact Last Name Dean		First Name Joseph	MI Suffix
Client Contact Title Environmental Manager		Phone 713-215-3427	Ext
Email Address Joesph.Dean@williams.com		FAX	

SITE INFORMATION

DEP Site ID#	Site Name Leidy South Project - Compressor Station 607		
EPA ID#	Estimated Number of Employees to be Present at Site		
Description of Site Rural, agricultural and forested area adjacent to/overlapping an existing natural gas pipeline right-of-way.			
County Name Luzerne	Municipality Fairmount	City <input type="checkbox"/>	Boro <input type="checkbox"/>
		Twp <input checked="" type="checkbox"/>	State
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>
		Twp <input type="checkbox"/>	State
Site Location Line 1 78 Maransky Road		Site Location Line 2	
Site Location Last Line – City Sweet Valley		State PA	ZIP+4 18656
Detailed Written Directions to Site From Dallas, PA: At traffic circle take the 3 rd exit and stay on PA-415 North for 1.7 miles. Turn left on PA-118 West and go 13.3 miles. Turn left onto Jackson Hill Road/Maransky Road go 0.4 mile, destination will be on the left.			
Site Contact Last Name Dean	First Name Joseph	MI	Suffix
Site Contact Title Environmental Manager		Site Contact Firm Transcontinental Gas Pipe Line Company, LLC	
Mailing Address Line 1 2800 Post Oak Blvd., Level 11		Mailing Address Line 2	

Mailing Address Last Line – City Houston			State TX	ZIP+4 77056
Phone 713-215-3427	Ext	FAX	Email Address Joseph.Dean@williams.com	
NAICS Codes (Two- & Three-Digit Codes – List All That Apply) 221			6-Digit Code (Optional)	
Client to Site Relationship OWN				

FACILITY INFORMATION

Modification of Existing Facility		Yes	No
1.	Will this project modify an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Will this project involve an addition to an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>If "Yes", check all relevant facility types and provide DEP facility identification numbers below.</i>			

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

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
41.298049, -76.222742	41	17	53	76	13	22
Horizontal Accuracy Measure	Feet		--or--	Meters		
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input checked="" type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code	GISDR					
Reference Point Code	CNTAR					
Altitude	Feet	1310	--or--	Meters		
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input checked="" type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code	TOPO					
Geometric Type Code	POINT					
Data Collection Date	08/16/19					
Source Map Scale Number	1	Inch(es)	=	24,000	Feet	
	--or--	Centimeter(s)	=		Meters	

PROJECT INFORMATION

Project Name Leidy South Project - Compressor Station 607			
Project Description Compressor Station 607 will consist of installing two Solar Titan 130 gas driven turbine compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres. Because the Project is governed by the Natural Gas Act, the Federal Energy Regulatory Commission (FERC) has exclusive jurisdiction over siting; therefore, local zoning is preempted.			
Project Consultant Last Name Clark	First Name Kevin	MI M.	Suffix

Project Consultant Title Project Manager		Consulting Firm WHM Consulting, Inc.	
Mailing Address Line 1 2525 Green Tech Drive Suite B		Mailing Address Line 2	
Address Last Line – City State College		State PA	ZIP+4 16841
Phone 814-689-1560	Ext	FAX 814-689-1557	Email Address kevinc@whmgroup.com
Time Schedules Winter 2020/2021	Project Milestone (Optional) Commence Construction		
December 1, 2021	In service Date		

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** Yes No

2. **Is your project funded by state or federal grants?** Yes No
Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
 Aspect of Project Related to Grant _____
 Grant Source: _____
 Grant Contact Person: _____
 Grant Expiration Date: _____

3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** Yes No
Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
 If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

- Note:** Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.
1. **Is there an adopted county or multi-county comprehensive plan?** Yes No

 2. **Is there an adopted municipal or multi-municipal comprehensive plan?** Yes No

 3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** Yes No
Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
 If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.

 4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** Yes No
 If zoning approval has been received, attach documentation.

 5. **Have you attached Municipal and County Land Use Letters for the project?** Yes No

COORDINATION INFORMATION

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

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

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

1.0	Is this a coal mining project? If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
1.1	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.2	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.3	Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.4	For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.5	Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.6	Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.0	Is this a non-coal (industrial minerals) mining project? If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
2.1	Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.2	Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.3	Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.4	For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.5	Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

3.0	Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well? If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
3.1	Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.2	Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system? If "Yes", discuss in <i>Project Description</i> .	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.3	Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
4.0	Will the project involve a construction activity that results in earth disturbance? If "Yes", specify the total disturbed acreage. 4.0.1 Total Disturbed Acreage 18.25	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.0	Does the project involve any of the following? If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.1	Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.2	Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.3	Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
6.0	Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
7.0	Will the project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
8.0	Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations? If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the <i>Project Description</i> , where applicable. 8.0.1 Estimated Proposed Flow (gal/day)	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0	Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0.1	Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
10.0	Is this project for the beneficial use of biosolids for land application within Pennsylvania? If "Yes" indicate how much (i.e. gallons or dry tons per year). 10.0.1 Gallons Per Year (residential septage) _____ 10.0.2 Dry Tons Per Year (biosolids) _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
11.0	Does the project involve construction, modification or removal of a dam? If "Yes", identify the dam. 11.0.1 Dam Name _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No

12.0	Will the project interfere with the flow from, or otherwise impact, a dam? If "Yes", identify the dam.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
12.0.1	Dam Name				
13.0	Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)? If "Yes", identify each type of emission followed by the amount of that emission.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
13.0.1	Enter all types & amounts of emissions; separate each set with semicolons.	Summary of Compressor Station 607 Operational Potential to Emit (PTE): NOx - 54.83; CO - 47.45; VOC - 13.43; SO2 - 5.87; PM10 - 11.44; PM2.5 - 11.44; Single HAP - 5.01; Total HAP - 5.6; CO2e - 208,400.1 = Annual (tpy)			
14.0	Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year? If "Yes", check all proposed sub-facilities.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
14.0.1	Number of Persons Served	_____			
14.0.2	Number of Employee/Guests	_____			
14.0.3	Number of Connections	_____			
14.0.4	Sub-Fac: Distribution System	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.5	Sub-Fac: Water Treatment Plant	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.6	Sub-Fac: Source	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.7	Sub-Fac: Pump Station	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.8	Sub Fac: Transmission Main	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.9	Sub-Fac: Storage Facility	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
15.0	Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0	Is your project to be served by an existing public water supply? If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0.1	Supplier's Name	_____			
16.0.2	Letter of Approval from Supplier is Attached	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
17.0	Will this project involve a new or increased drinking water withdrawal from a stream or other water body? If "Yes", should reference both Water Supply and Watershed Management.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
17.0.1	Stream Name	_____			
18.0	Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste? If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
18.0.1	Type & Amount	_____			
19.0	Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0	Does your project involve installation of a field constructed underground storage tank? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0.1	Enter all substances & capacity of each; separate each set with semicolons.	_____			
21.0	Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
21.0.1	Enter all substances & capacity of each; separate each set with semicolons.	_____			

22.0 Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

22.0.1 Enter all substances & capacity of each; separate each set with semicolons.

23.0 Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

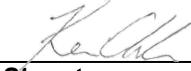
23.0.1 Enter all substances & capacity of each; separate each set with semicolons.

24.0 Will the intended activity involve the use of a radiation source? Yes No

CERTIFICATION

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

Type or Print Name Kevin M. Clark



Project Manager

08/28/2019

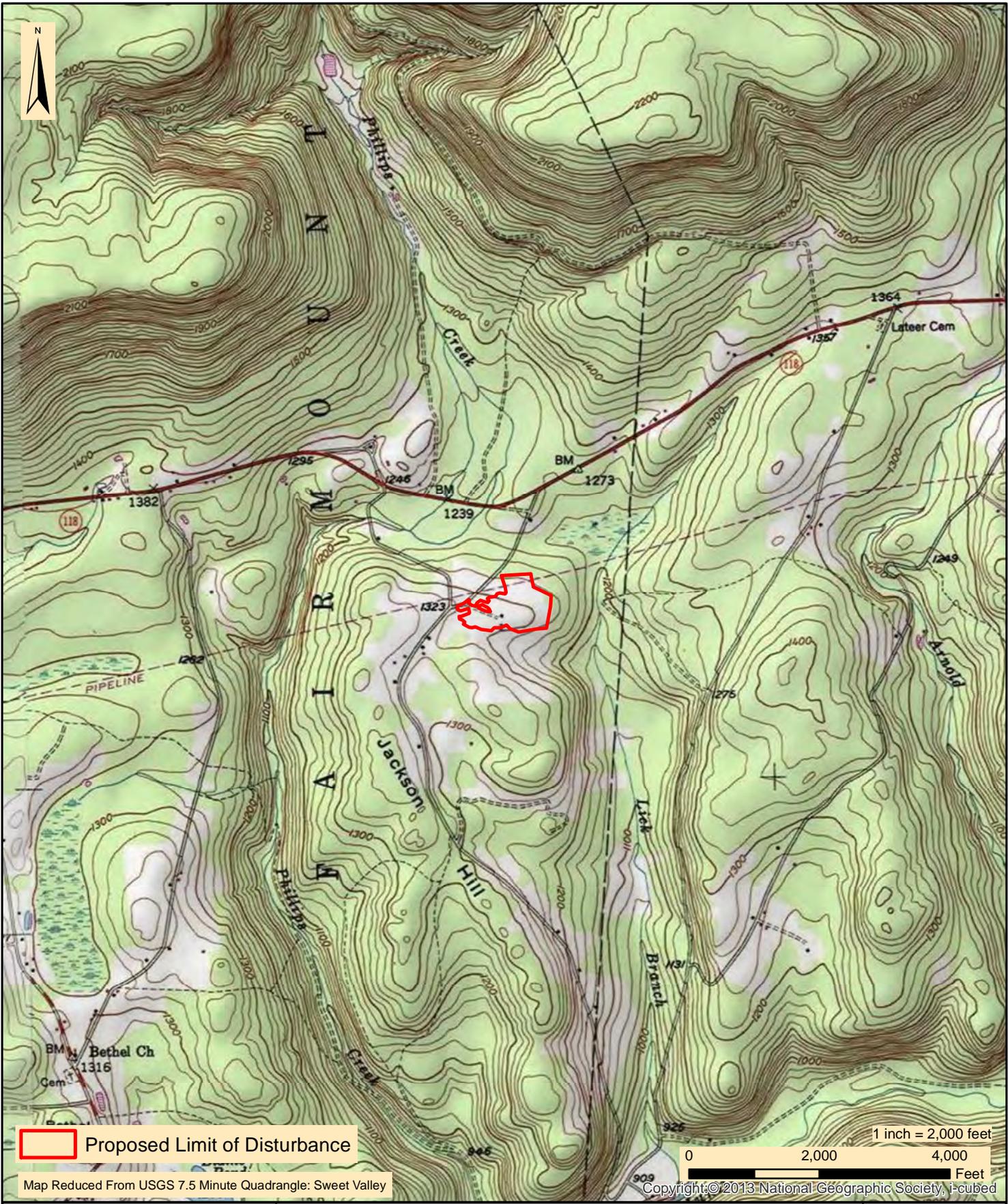
Signature

Title

Date

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

PROJECT LOCATION MAP



 Proposed Limit of Disturbance

1 inch = 2,000 feet
 0 2,000 4,000 Feet

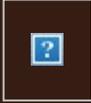
WHM
 designs, permits, resolutions
consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
 NEW **PROPOSED** COMPRESSOR STATION 607
 PROJECT LOCATION MAP

Date: 8/21/2019
 WHM Drawing Number: WILLIAMS204A001
 Drawn By: FTN
 Figure Number: 5

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

From: [UPS Quantum View](#)
To: [Kevin Clark](#)
Subject: UPS Delivery Notification, Tracking Number 1Z8797VV0394121463
Date: Wednesday, September 18, 2019 12:57:51 PM



Your package has been delivered.

Delivery Date: Wednesday, 09/18/2019

Delivery Time: 12:52 PM

At the request of WHM CONSULTING, INC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z8797VV0394121463
Ship To:	TO WHOM IT MAY CONCERN Luzerne County Planning Commission 20 N PENNSYLVANIA AVE ROOM FL2 WILKES BARRE, PA 18711 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	FRONT DESK SIMKO
Reference Number 1:	Williams 18-186



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*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT D
CULTURAL RESOURCE NOTICE**



November 19, 2018

Devyn Richardson
Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396

Re: File No. ER 2015-0967-042-N
FERC Phase I Literature Review & Cultural Resources Survey Plan: Transcontinental Gas Pipe Line Company, LLC, Leidy South Project, Clinton, Columbia, Luzerne, Lycoming, Schuylkill & Wyoming Counties

Dear Mr. Richardson:

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

Archaeological Resources

Based on an evaluation by our staff, including a review of the Statewide Pre-Contact Predictive Model, there is a high probability that National Register significant archaeological sites are present within this project area. These resources could be adversely affected by project activities. Our review considers the locations of known archaeological resources, soil type, topographic setting, slope direction and distance to water, among other regionally specific predictive factors for archaeological site locations. It is our opinion that a Phase I archaeological survey should be conducted to locate potentially significant resources. Guidelines and instructions for conducting all phases of archaeological survey in Pennsylvania are available on our website <http://www.phmc.pa.gov/Preservation/About/Documents/SHPO-Guidelines-Archaeological-Investigation.pdf>.

The PASHPO will keep the information you provided for this submission and any subsequent submission on file. Please provide a copy of this letter and any other project-related correspondence to your state or federal permitting or funding agency.

Above Ground Resources

A preliminary review of this project indicates that there may be National Register-eligible above ground resources in the project area. Underground pipelines have the potential to affect these resources when compressor stations are proposed; and/or the line requires the clear cutting of a new right-of-way or access roads through hedgerows, wooded area, and other landscape features; or placement of new features amongst clusters of buildings associated with a farm.

A farm is defined as encompassing the farm dwelling(s), barn, outbuildings and the crop fields, meadows, pastures, orchards, woodlots, etc. and including landscape features such as fences, tree lines, contour strips, streams, etc. and circulation networks. Please use the PHMC-PA SHPO Historic Agricultural Resources of Pennsylvania, c 1700-1960 context which is available here:

<http://www.phmc.state.pa.us/portal/communities/agriculture/history/index.html> to determine the identified agricultural region your project is located within and its registration requirements (farm, farmstead or rural historic district).

An identification documentation submission of the project area is required to locate potentially significant above ground resources. Please see the “Survey Guidelines for Pipeline Projects – Above Ground Resources” for additional guidance available here:

<http://www.phmc.pa.gov/Preservation/About/Pages/Forms-Guidance.aspx>.

For more information on survey strategies and methodologies, please contact the staff referenced below.

Provide historic (www.pennpilot.psu.edu) and current aerial mapping comparisons showing overall landscape features. Photographs of the project vicinity including setting/landscape views are required. Land use planning and tax maps that show parcel boundaries and land use are also helpful to the assessment of rural historic landscapes.

Page 3
November 19, 2018
ER No. 2015-0967-042-N

If you need further information regarding archaeological resources, please contact Steven McDougal at smcdougal@pa.gov or (717) 772-0923. If you need further information concerning above ground resources, please contact Cheryl Nagle at chnagle@pa.gov or (717) 772-4519.

Sincerely,



Douglas C. McLearen, Chief
Division of Environmental Review

DCM/tmw



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

July 9, 2019

Christopher Bergman, PhD.
AECOM
525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

RE: ER 2015-0967-042-P: Phase I Cultural Resources Survey for the Leidy South Project,
Compressor Station 607-A; Volume I: Archaeology

Dear Dr. Bergman:

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

We concur with the findings in the report that the following properties are not eligible for listing in the National Register of Historic Places due to a lack of integrity and/or significance:

36LU0346

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

If you have any questions or comments concerning this review, please contact me at (717) 772-0923 or chanson@pa.gov.

Sincerely,

Douglas C. McLearen, Chief
Division of Environmental Review



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

August 13, 2019

Christopher Bergman, PhD.
AECOM
525 Vine Street, Suite 1800
Cincinnati, OH 45202

RE: ER 2015-0967-042-Q: Phase I Cultural Resources Survey for Leidy South Project, Clinton, Columbia, Luzerne, Lycoming, Schuylkill, and Wyoming Counties, Pennsylvania, Volume I: Archaeology

Dear Dr. Bergman:

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

We concur with the findings in the report that the following properties are not eligible for listing in the National Register of Historic Places due to a lack of integrity and/or significance:

36CN0208; 36CN0228; 36SC0092; 36LU0346 (Previously Determined Not Eligible 7/9/2019)

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

If you have any questions or comments concerning this review, please contact me at (717) 772-0923 or chanson@pa.gov.

Sincerely,

Douglas C. McLearen, Chief
Division of Environmental Review



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

October 1, 2019

Rebecca H. Turner
AECOM
525 Vine Street, Suite 1800
Cincinnati OH 45202

ER 2015-0967-042-T: FERC, Leidy South Project (pipeline and compressor stations), Phase 1 Above Ground Resource Recon Survey, Volume II: Architectural History, Clinton, Columbia, Luzerne, Lycoming, Schuylkill and Wyoming Counties

Dear Ms. Turner,

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

Above Ground Resources Review - Additional Information Recommendation Compressor Station 620

Due to the nature of the proposed project (construction of the compressor station and the construction of a communication tower) and the types of potential historic resources (agricultural properties) we are recommending additional information to complete our review. In accordance with our statewide historic agricultural context as approved by the National Park Service, a farm as a property type/registration requirement is not just the built environment (house, barn, and outbuildings) but includes circulation patterns, landscape features, croplands, historically associated fields, etc. as well.

Therefore, we are requesting completion of full Historic Resource Survey Forms (HRSFs) for the properties listed below be prepared that applies the agricultural context.

BHP Key # 862025

BHP Key #862026

***BHP Key #210604/210607 – it appears to be one resource (house, barn and outbuildings).
Current ownership does not determine the resource – if this was historically the same
property, submit a HRSF, or provide narrative that explains that these buildings are not
historically related.***

BHP Key #862027

BHP Key #862028

BHP Key #862029

A copy of the agricultural context and registration requirements for that region are available via the agricultural history website:

<http://www.phmc.state.pa.us/portal/communities/agriculture/history/index.html>

The HRSF should also include agricultural census data for the property and the township, as well as a site plan with the buildings labeled with approximate construction dates. In addition, as part of the HRSF, please provide historic and current aerial photographs of the property (available via www.pennpilot.psu.edu).

Please note, the PA SHPO has new guidance for the surveying/documentation of farms that date from c. 1960 to 1980. Please refer to the information posted here <https://pahistoricpreservation.com/agricultural-history-updates/>. And note that there are additional items that are to be submitted with the HRSFs.

Viewshed Analysis - Photo Sims

Please provide photo Sims from the Key Numbers listed below for both the proposed Compressor Station 620 and the proposed communication tower

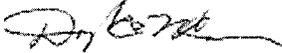
BHP Key # 862025
BHP Key #862026
BHP Key #210604/210607
BHP Key #862027
BHP Key #862028
BHP Key #862029

General Information/Direction for future project submissions

- Please map all newly identified, unevaluated, eligible and listed Key Numbers on the USGS/Aerial maps that include the proposed ROW, access roads, and other components.

If you need further information in this matter, please contact Cheryl L. Nagle at chnagle@pa.gov or (717) 772-4519.

Sincerely,



Douglas C. McLearn, Chief
Division of Environmental Review



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

December 30, 2019

Christopher Bergman, PhD.
AECOM
525 Vine Street, Suite 1800
Cincinnati, OH 45202

Re: ER 2015-0967-042-U; FERC: Phase I Cultural Resources Survey for the Leidy South Pipeline Project, Addendum 1, Clinton County, Pennsylvania.

Dear Dr. Bergman:

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

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

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

Sincerely,

Douglas C. McLearn, Chief
Division of Environmental Review



April 9, 2020

Rebecca H. Turner
AECOM
525 Vine Street, Suite 1800
Cincinnati OH 45202

ER 2015-0967-042-W: FERC, TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC,
LEIDY SOUTH PROJECT, receipt of additional information (addendum to HRSFs)

Dear Ms. Turner,

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

Above Ground Resources - Assessment of Eligibility

Based on the information received and available in our files, it is the opinion of the Pennsylvania State Historic Preservation Officer that the following properties are eligible for listing in the National Register of Historic Places:

The ***Kessler Farm, Key #210604/210607*** is eligible under Criterion A in the Area of Agriculture as a farmette meeting the PA Agricultural Context for the Pocono Anthracite Region, for 1860-1915, Diversified Vegetable, Fruit, Poultry, Dairy, and Hay Production for Local Markets period. The proposed period of significance begins in c1860 and ends in 1915. The proposed boundary includes the current tax parcel boundaries. This resource has not been evaluated for archaeological potential.

The ***Otto Farm, Key 862027*** is eligible under Criterion A in the Area of Agriculture as a farm meeting the PA Agricultural Context for the Pocono Anthracite Region, for 1940-1960. The proposed period of significance begins in 1940 and ends in 1960. The proposed boundary includes the current tax parcel boundary. This resource has not been evaluated for archaeological potential.

We concur with the findings of the agency that the following properties are not eligible for listing in the National Register of Historic Places due to a lack of integrity and/or significance:

Coleman Natural Foods/Dennis & Carol Rebeck, Key # 862025

Kroh Farm, Key # 862028

Ebert Farm, Key #862026

Hurtzinger Farmette, Key #862029

We concur the scope and level of effort utilized to identify historic properties for this project is appropriate pursuant to 36CFR 800.4. Our evaluation is based upon the information

provided and available in our files for review. If National Register listing for this property is sought in the future, additional documentation of the property's significance and integrity may be required to both verify this evaluation and satisfy the requirements of the National Park Service (36 CFR Part 60). Thus, the outcome of the National Register listing process cannot be assured by this evaluation.

Assessment of Effect

The PA SHPO offices are currently closed due to the Governor's Order. We are unable to access the paper project files related to this submission. If you have an electronic copy of the project submission, you may email it to Cheryl Nagle at chnagle@pa.gov.

Sincerely,



Douglas C. McLearn, Chief
Division of Environmental Review



Pennsylvania State Historic Preservation Office

PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

April 21, 2020

Rebecca H. Turner
AECOM
525 Vine Street Suite 1800
Cincinnati OH 45202

ER 2015-0967-042-X: FERC, Leidy South Project, replacement of Leidy Line A (Hensel Replacement), partial abandonment Leidy Line A; Hilltop Loop; Benton Loop; addition to Compressor Station 605; New compressor Station 607 (reviewed previously); addition to Compressor Station 610; New Compressor Station 620; etc.

Dear Ms. Turner,

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

Above Ground Resources

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

Specific to Compressor Station 620

The properties listed below, listed in or eligible for the National Register of Historic Places, are located near or in the project area. In our opinion, the activity described in your proposal will have no effect on such resources. Should the scope and/or nature of the project activities change, the PA SHPO should be contacted immediately.

*Otto Farm, Key # 862027
Kessler Farm, Key # 210604/210607*

If you need further information on above ground resources please consult Cheryl Nagle at chnagle@pa.gov or (717) 772-4519.

Sincerely,

Douglas C. McLearn, Chief
Division of Environmental Review

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT E
PASPGP-5 REPORTING CRITERIA CHECKLIST



PASPGP-5 REVIEW CHECKLIST

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

Applicant / Project Name: Leidy South Project	County(ies): Lycoming, Clinton, Luzerne
---	---

- YES NO 1. Is any of the proposed work located waterward of the ordinary high water mark (OHWM) of any of the ineligible waterbodies identified in the instructions?
- YES NO 2. Does the proposed work result in the diversion of more than 10,000 gallons per day of surface water or groundwater into or out of the Great Lakes Basin (Lake Erie Watershed)?
- *****
- YES NO 3. Does the application/registration include any Single and Complete Projects that propose the permanent conversion of greater than 0.10 acre of forested and/or shrub-scrub wetlands in association with a regulated activity?
- YES NO 4. Is the application/registration associated with a Single and Complete Project whereby a previous Department of the Army authorization has been issued through an Individual Permit, a Nationwide Permit, or a PASPGP processed by the Corps as a Category III/Reporting Activity? **If YES, please complete the following table.**

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

- YES NO 5. Does the proposed project require the preparation of an Environmental Impact Statement?
- YES NO 6. Does the proposed regulated activity or area of indirect impact (secondary impact) extend across state boundaries (i.e., the work is not wholly located within the Commonwealth of Pennsylvania)?
- YES NO 7. Does the Single and Complete Project involve the construction or expansion of a residential, commercial or institutional subdivision or development?
- YES NO 8. Does greater than 0.25 acre of wetland(s) exist within the property boundary that are not proposed to be directly impacted as part of this application/registration? **If YES, provide wetland acreage: See acreages in Environmental Assessment Module 2, Section S2.B acres.**
- YES NO 9. Are you proposing to protect the wetland area(s) through a deed restriction or conservation easement that follows the Corps' Model Protective Covenant?
- YES NO 10. Does the proposed work temporarily impact waters and/or wetlands that will remain in place for more than 1 year?
- YES NO 11. Are you proposing to do work in the Delaware River (upstream from the U.S. Route 202 Bridge in New Hope, Pennsylvania.) and/or the Lehigh River (from the mouth to Francis E. Walter Dam, located in Carbon and Luzerne County, Pennsylvania between March 15 and June 30)?
- YES NO 12. Does the proposed work occur in any of the waters listed in the instructions?
- YES NO 13. Will you comply with all of the identified conservation measures?
- YES NO 14. Is there any other pending applications/registrations with the DEP or Corps that are necessary for this total proposed project to function and meet its intended purpose? **If YES, provide following information.**

Application / Registration Number / Type	Project Name	Date of Submittal to DEP (mm/dd/yyyy)	DEP / CCD Reviewing Office	Corps Reviewing Office
Chapter 102 (ESCGP-3)	Leidy South	to be submitted	RPCO	N/A
Section 402 NPDES Hydrostatic Test Water Discharge Permit	Leidy South	to be submitted	NC Regional Office	N/A
Air Quality General	Leidy South	to be submitted	NE Regional Office	N/A

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT F
BOG TURTLE STATEMENT**

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC
Requirement F – Bog Turtle Statement*

A Bog Turtle Habitat Screening Form and Survey was not completed as part of this Joint Permit Application because the Compressor Station 607 are not in the range of the Bog Turtle. In addition, consultation with the United States Fish and Wildlife Service and the Pennsylvania Fish and Boat Commission through the PNDI Environmental Review process outlined in Requirement G did not indicate a need for consultation regarding the bog turtle.

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT G-1
PNDI ENVIRONMENTAL REVIEW RECEIPT**

1. PROJECT INFORMATION

Project Name: **Leidy South Project**

Date of Review: **5/7/2020 03:48:25 PM**

Project Category: **Energy Storage, Production, and Transfer, Energy Transfer, Other**

Project Area: **407.34 acres**

County(s): **Clinton; Columbia; Luzerne; Lycoming; Schuylkill; Wyoming**

Watersheds HUC 8: **Lower Susquehanna-Penns; Lower West Branch Susquehanna; Middle West Branch Susquehanna; Upper Susquehanna-Lackawanna; Upper Susquehanna-Tunkhannock**

Watersheds HUC 12: **Beaver Run; Drury Run; Fishing Creek-Susquehanna River; Hall Run-West Branch Susquehanna River; Hans Yost Creek-Deep Creek; Headwaters Huntington Creek; Kline Hollow Run-Little Fishing Creek; Left Branch Young Womans Creek; Lower South Branch Tunkhannock Creek; Middle Kettle Creek; Mud Run-Green Creek; Paddy Run; Rattlesnake Run-West Branch Susquehanna River; West Creek; Young Womans Creek-West Branch Susquehanna River**

Decimal Degrees: **41.412205, -77.798676**

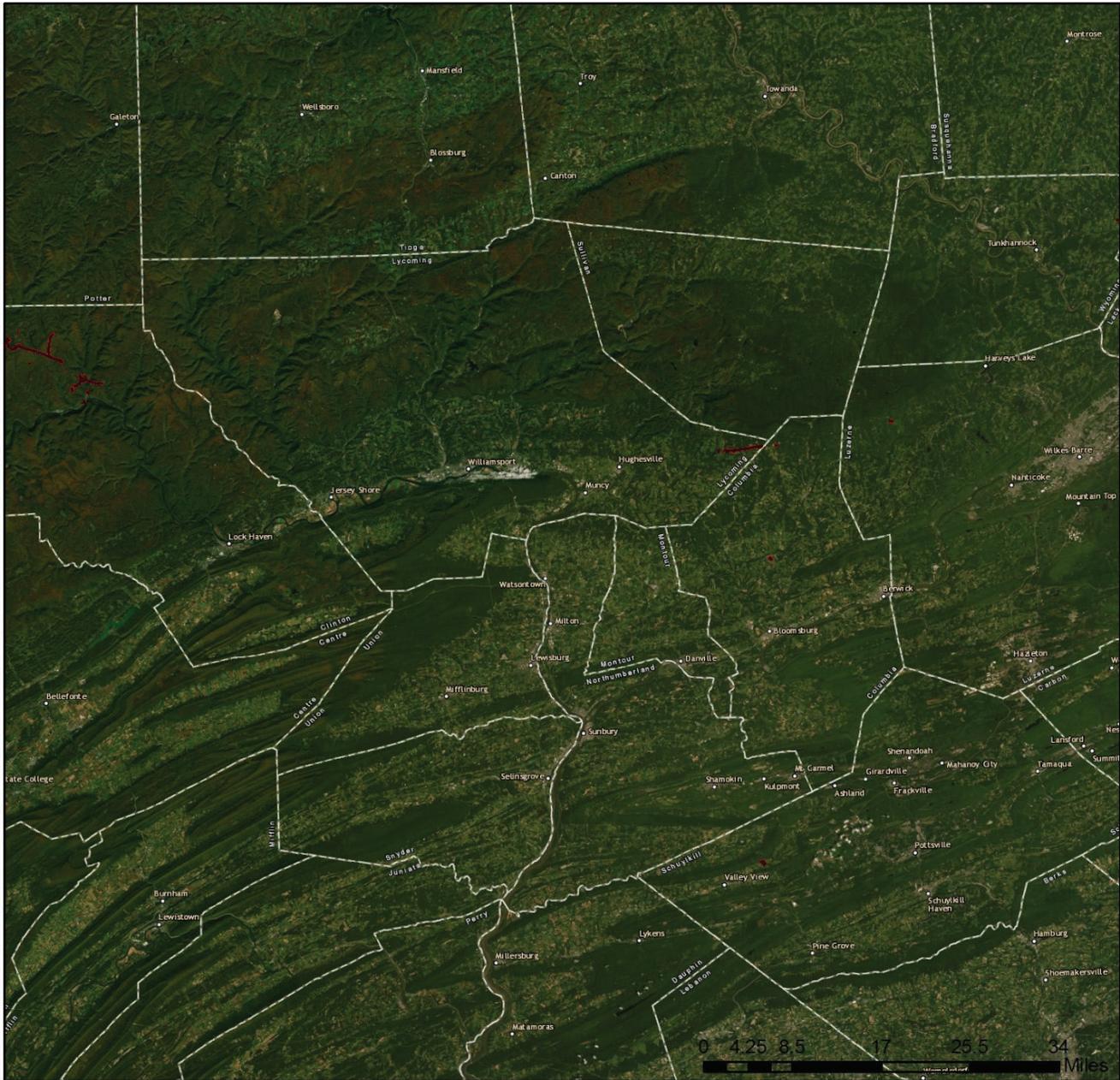
Degrees Minutes Seconds: **41° 24' 43.9387" N, 77° 47' 55.2322" W**

2. SEARCH RESULTS - LARGE PROJECT

Agency	Results	Response
PA Game Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response

Large Project. The project area is greater than 10 miles and/or 5,165 acres and therefore is categorized as a Large Project, and is not analyzed by the PNDI tool. Coordination is therefore required with the four jurisdictional agencies to determine if potential impacts to threatened and endangered and/or special concern species and resources within the project area. Please see the DEP Information section of the receipt if a PA Department of Environmental Protection Permit is required.

Leidy South Project

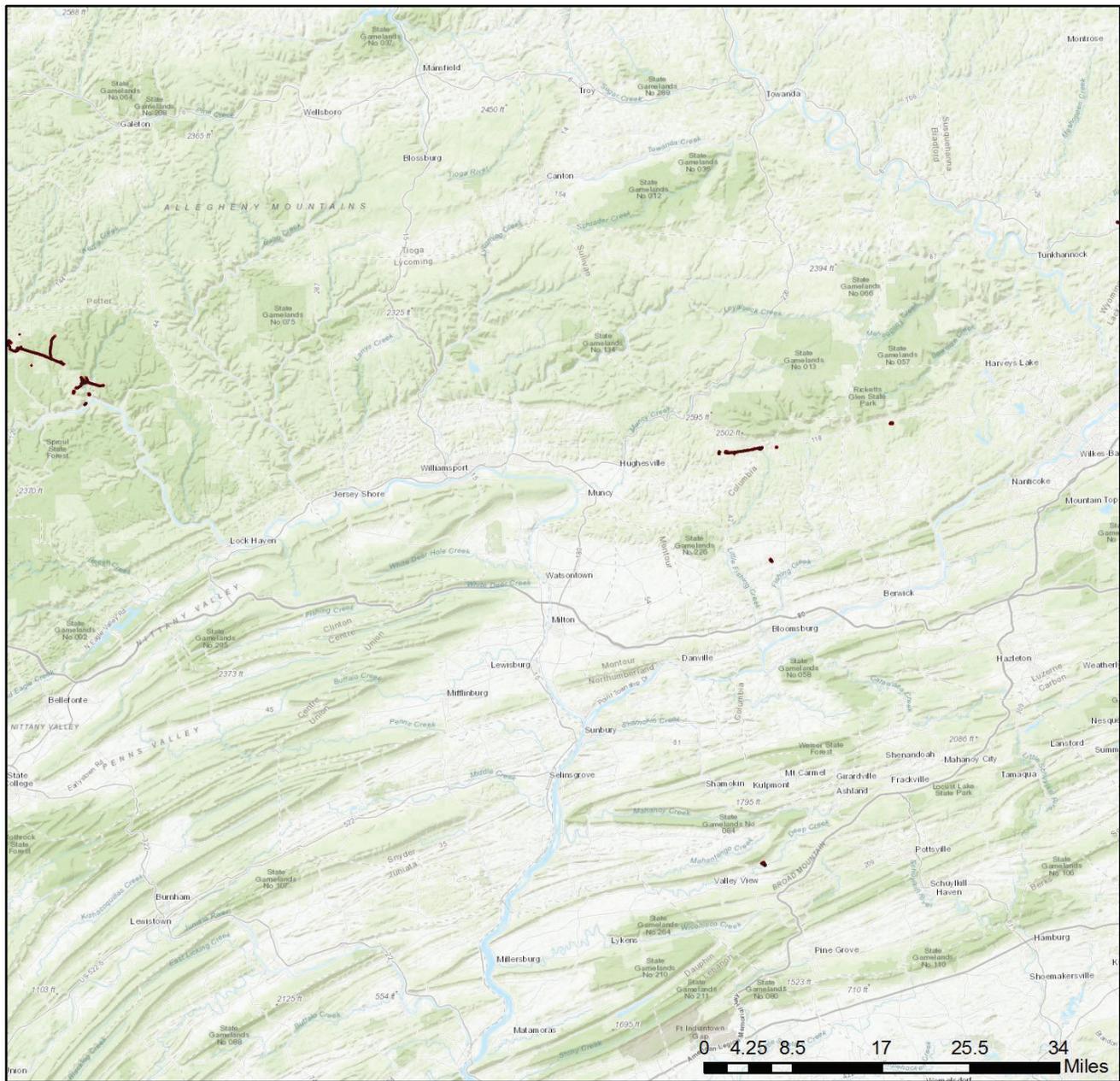


- Project Boundary
- Buffered Project Boundary



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

Leidy South Project



- 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:

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

PA Department of Conservation and Natural Resources

RESPONSE:

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

PA Fish and Boat Commission

RESPONSE:

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

U.S. Fish and Wildlife Service

RESPONSE:

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

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).

***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:

___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

___ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

___ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

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

5. ADDITIONAL INFORMATION

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

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

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

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

PA Fish and Boat Commission

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

U.S. Fish and Wildlife Service

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

PA 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: Kevin M. Clark
Company/Business Name: WHM Consulting, LLC
Address: 2525 Green Tech Drive, Suite B
City, State, Zip: State College, PA 16803
Phone: (814) 689-1650 Fax: ()
Email: kevinc@whmgroup.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

05/07/2020

date

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT G-2
THREATENED AND ENDANGERED
SPECIES COORDINATION SUMMARY**

THREATENED AND ENDANGERED SPECIES COORDINATION SUMMARY

Coordination has been initiated with the Pennsylvania Department of Conservation and Natural Resources (DCNR), Pennsylvania Fish and Boat Commission (PFBC), Pennsylvania Game Commission (PGC), and the United States Fish and Wildlife Service (USFWS). Agency coordination resulted in the identification of several species that may occur within the Project area and are provided in Table G-1. A concurrent review with the reviewing agencies is being conducted in conjunction with the Chapter 105 Permit Review Process.

Table G-1 Federally and State-Listed Species Potentially Occurring Within the Compressor Station 607					
Species Group	Species Common Name	Scientific Name	Federal Status	State Status	Survey Status
Mammals	Indiana bat	<i>Myotis sodalis</i>	Threatened	Endangered	Not required, implementing seasonal tree clearing restrictions
	Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Endangered	Not required, implementing seasonal tree clearing restrictions
Plant	Northeastern Bulrush	<i>Scirpus ancistrochaetus</i>	Endangered	Endangered (Proposed Threatened)	Completed
	White Twisted-stalk	<i>Streptopus amplexifolius</i>	Not listed	Threatened, (Proposed Endangered)	Completed
	Swamp Currant	<i>Ribes lacustre</i>	Not listed	Species of Special Concern (Proposed Endangered)	Completed
	Creeping Snowberry	<i>Gaultheria hispidula</i>	Not listed	Rare	Completed
Sources: Allison 2018; Podniesinski 2018; Braun 2019; Jahrsdoerfer 2019b.					
Based on federal and state resource agency feedback.					

USFWS Coordination

Indiana Bat

The USFWS indicated that the Project is within the range of the Indiana bat, which is federally listed as endangered. The USFWS indicated that as long as tree clearing occurred between November 15 and March 31 for the Project, then surveys were not required for the Indiana bat.

Transco plans to complete all tree clearing outside of the active Indiana bat season to avoid impacts on any Indiana bats that may be present in the Limits of Disturbance (LOD). Specifically, tree clearing will be completed between November 15 and March 31. As such, Transco does not expect impacts to Indiana bats as a result of the Project.

Northern Long-eared Bat

Transco previously completed surveys for northern long-eared bats in 2014 through 2016 for its Atlantic Sunrise Project, which is located adjacent to the proposed Project. Based on review of that survey data from the Atlantic Sunrise Project, no known maternity roost trees are located within 0.25 mile of Compressor Station 607. “On February 16, 2016, a special conservation rule (i.e., 4(d) rule) was adopted that tailors protections for the northern long-eared bat under the Endangered Species Act (81 FR 1900). Incidental take that occurs as a result of tree removal that is not within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet from a known, occupied maternity roost tree is not prohibited in accordance with the 4(d) rule” (Jahrsdoerfer 2019b).

A USFWS Verification Letter has been provided for the Leidy South Project which verifies that the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule Programmatic Biological Opinion satisfies and concludes responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat. Transco plans to complete all tree clearing outside of the active northern long-eared bat season to avoid impacts on any northern long-eared bats that may be present in the LOD. Specifically, tree clearing will be completed between November 15 and March 31. As such, Transco does not expect impacts to northern long-eared bats as a result of the Project.

Northeastern Bulrush

All Project components are within the range of the northeastern bulrush (*Scirpus ancistrochaetus*), which is federally listed as endangered (Jahrsdoerfer 2019b). The preferred

habitat of the northeastern bulrush is along the fringes of seasonal ponds, shallow wet depressions, and wetlands. It fruits in July and persists through January (Podniesinski 2018).

Transco conducted surveys in June and July of 2019 of all potentially suitable wetland habitat within and surrounding the proposed Project area. The presence of Northeast Bulrush was not confirmed within the Compressor Station 607 Project area or survey corridor, as outlined the DCNR / USFWS Botanical Survey Report outlined in Requirement L-3, Module 2, Appendix S2-3. The October 1, 2019 letter from the USFWS concluded that implementation of the proposed project will not affect this species.

DCNR Coordination

The DCNR identified several target plant species within the counties crossed by the pipeline facilities (see Table G-1). Target species include those that are state-listed or proposed for state listing as rare, threatened, or endangered. Although the DCNR did not indicate that any rare, threatened, or endangered plant species were documented on-site, plant surveys were requested to be conducted for target species in Project areas that met the conditions of each species' habitat (Podniesinski 2018). Survey windows vary for each species based primarily on flowering times, or other times of year when the plant is most readily apparent. The federally listed northeastern bulrush is described above under the USFWS section.

Transco completed surveys for state-listed plant species identified within and surrounding the Project area for Compressor Station 607. No state-listed species were identified within the Limits of Disturbance or Survey Area. A DCNR / USFWS Botanical Survey Report and approval letter is included in Requirement L-3, Module 2, Appendix S2-3.

PFBC Coordination

Per coordination with the PFBC, there were no potential conflicts with the Compressor Station 607 portion of the Project.

PGC Coordination

Per coordination with the PGC, they deferred comments on potential impacts to the Northern Long-eared bat to the USFWS. There were no other potential conflicts with the Compressor Station 607 portion of the Project.

REFERENCES

- Allison, Jordan. 2018. Species Impact Review #50327. Pennsylvania Fish and Boat Commission (PFBC). November 20, 2018.
- Braun, Olivia A. 2019. PNDI Manual Project Submission. PGC ID Number 20181101501. January 22, 2019.
- Jahrsdoerfer, Sonja. 2019b. USFWS Pennsylvania Field Office PNDI Response. Received March 5, 2019.
- Podniesinski, Greg. 2018. Leidy South Project (PNDI Review). Pennsylvania Department of Conservation and Natural Resources (PADCNR). November 29, 2018.
- U.S. Fish and Wildlife Service (USFWS). 2018c. 2017 Indiana Bat (*Myotis sodalis*) Population Status Update. Revised November 13, 2018. Available at:
https://www.fws.gov/Midwest/endangered/mammals/inba/pdf/2017_Population_Stats_Indiana_Bat_Revised_%2013Nov2018.pdf. Accessed on April 9, 2019.
- , 2016. Northern Long-Eared Bat (*Myotis septentrionalis*) Status: Threatened with 4(d) Rule. Available at:
<https://www.fws.gov/Midwest/endangered/mammals/nleb/index.html>. Accessed July 29, 2016.

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT G-3
**PENNSYLVANIA DEPARTMENT OF
CONSERVATION AND NATURAL RESOURCES**

BUREAU OF FORESTRY

May 20, 2020

PNDI Number: 670193
Version: Final_5; 5/07/20

Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, PA 16803
Email: kevinc@whmgroup.com (hard copy will not follow)

Re: Leidy South Project
Clinton, Columbia, Luzerne, Lycoming, Schuylkill, Wyoming; PA

Dear Mr. Clark,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **670193 (Final_5)** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely



Greg Podnieszinski, Section Chief
Natural Heritage Section



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

May 7, 2020

**Re: Update PNDI Search ID: PNDI-670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

To Whom it May Concern:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), PNDI-670193. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were include in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to rare, candidate, threatened or endangered species.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (412) 713-0485 or contact me via e-mail at josh.henry@williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

Josh Henry
Environmental Specialist

Attachments: Attachment A: Mapping

cc: Shauna Akers, Transco
Kevin Clark, WHM Consulting, Inc.

BUREAU OF FORESTRY

October 3, 2019

PNDI Number: 670193
Version: Final_1; 8/21/19

Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, PA 16803
Email: kevinc@whmgroup.com (hard copy will not follow)

Re: Leidy South Project
Clinton, Columbia, Luzerne, Lycoming, Schuylkill, Wyoming, PA

Dear Mr. Clark,

Thank you for the submission of your field survey for Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 670193 (Final_1) for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated per Survey

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. DCNR requested a botanical survey for the following species on June 3, 2019:

Station 607 Maransky and Station 607 Hayfield:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Scirpus ancistrochaetus</i>	Northeastern Bulrush	Endangered	Threatened
<i>Streptopus amplexifolius</i>	White Twisted-stalk	Threatened	Endangered
<i>Ribes lacustre</i>	Swamp Currant	Special Concern	Endangered
<i>Gaultheria hispidula</i>	Creeping Snowberry	Rare	Rare

Leidy Line D 36" Hensel Replacement:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Sorbus decora</i>	Showy Mountain-ash	Endangered	Endangered
<i>Carex bebbii</i>	Bebb's Sedge	Endangered	Endangered
<i>Carex disperma</i>	Soft-leaved Sedge	Rare	Rare
<i>Galium latifolium</i>	Purple Bedstraw	None	Special Concern

A survey was conducted by Mallory Gilbert, Eric Burkhardt, and David Woods of WHM on between May and July 2019. *Scirpus ancistrochaetus* and *Galium latifolium* were both found within the survey corridor, but outside the proposed limits of disturbance. Therefore, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely

A handwritten signature in black ink that reads "Greg Podnieszinski". The signature is written in a cursive style and is centered within a light gray rectangular box.

Greg Podnieszinski, Section Chief
Natural Heritage Section



August 27, 2019

Greg Podniesinski, Section Chief
PA DCNR, Natural Heritage Section
P.O. Box 8552
Harrisburg, PA 17015-8552

**RE: TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC; LEIDY SOUTH PROJECT;
DCNR & USFWS BOTANICAL SURVEY REPORT; PNDI RECEIPT NO. 670193;
CLINTON, LYCOMING & LUZERNE COUNTY, PENNSYLVANIA**

Dear Mr. Podniesinski,

On behalf of Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. (Williams), WHM Consulting, Inc. (WHM) conducted Botanical Surveys associated with the Leidy South Project. Botanical surveys were conducted for the Hensel Replacement, Hilltop Loop, Benton Loop and Compressor Station 607 in Clinton, Lycoming and Luzerne Counties. The surveys were conducted between May and July of 2019.

Enclosed you will find one copy of the 2019 DCNR & USFWS Botanical Survey Report for your review. This report includes proposed avoidance and minimization measures for potential impacts associated with *Scirpus ancistrochaetus* (northeastern bulrush) and *Galium latifolium* (purple bedstraw) that were identified outside the proposed Limit of Disturbance during the surveys.

If you have any questions regarding this correspondence, please do not hesitate to call me at (814) 689-1650 or contact me via e-mail at kevinc@whmgroup.com. Alternatively, you can contact Josh Henry with Transco at (412) 713-0485 or via e-mail at Josh.Henry@Williams.com.

Sincerely,

WHM Consulting, Inc.

A handwritten signature in black ink, appearing to read "Kevin Clark", written in a cursive style.

Kevin Clark
Project Manager

cc: Josh Henry, Transco

BUREAU OF FORESTRY

June 3, 2019

PNDI Number: 670193

Version: Final_1; 10/31/18

Kevin Clark

WHM Consulting, Inc.

2525 Green Tech Dr., Suite B

State College, PA 16803

Email: kevinc@whmgroup.com (hard copy will not follow)

Re: Leidy South Project

Clinton, Columbia, Luzerne, Lycoming, Shuylkill, PA

Dear Mr/Ms Doe,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 670193 (Final_1) for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

Potential Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the project vicinity. Based on a detailed PNDI review, DCNR determined potential impacts to the following threatened or endangered species or species of special concern.

Station 607 Maransky and Station 607 Hayfield:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Scirpus ancistrochaetus</i>	Northeastern Bulrush	Endangered	Threatened
<i>Streptopus amplexifolius</i>	White Twisted-stalk	Threatened	Endangered
<i>Ribes lacustre</i>	Swamp Currant	Special Concern	Endangered
<i>Gaultheria hispidula</i>	Creeping Snowberry	Rare	Rare

Leidy Line D 36" Hensel Replacement:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Sorbus decora</i>	Showy Mountain-ash	Endangered	Endangered
<i>Carex bebbii</i>	Bebb's Sedge	Endangered	Endangered
<i>Carex disperma</i>	Soft-leaved Sedge	Rare	Rare
<i>Galium latifolium</i>	Purple Bedstraw	None	Special Concern

Survey Request

DCNR requests a survey for the following species:

- ***Scirpus ancistrochaetus* (Northeastern Bulrush):** documented in pipeline ROW and shallow emergent wetland; suitable habitat includes vernal ponds and mudholes; fruits in July, and persists through January
- ***Streptopus amplexifolius* (White Twisted-stalk):** documented in a moist shaded ravine; suitable habitat includes cool ravines; Flowers May-June

- ***Ribes lacustre* (Swamp Currant):** documented in a moist shaded ravine; suitable habitat includes swamps and cold, wet woods; Flowers May - June
 - ***Gaultheria hispidula* (Creeping Snowberry):** documented in flat wet woods; suitable habitat includes hummocks and tree stumps in bogs and swamps; Flowers June, fruits September
 - ***Sorbus decora* (Showy Mountain-ash):** documented in a tamarack swamp; suitable habitat includes rocky slopes; Flowers May, fruits September – October
 - ***Carex bebbii* (Bebb’s Sedge):** documented in sphagnum meadow; suitable habitat includes pond edges, boggy pastures, and moist sand flats, Fruits June – July
 - ***Carex disperma* (Soft-leaved Sedge):** documented in a tamarack swamp; suitable habitat includes swampy woods, bogs, and rhododendron swamps; fruits May-August
 - ***Galium latifolium* (Purple Bedstraw):** documented along Hensel Fork creek; suitable habitat includes woods, rocky slopes and roadsides; Flowers June-July
- ✓ A botanical survey for the above species should be conducted by a qualified botanist at the appropriate time of year. Please submit the resulting report to our office for review. Contact our office prior to the survey for detailed information about the species or for a list of qualified surveyors.
- ✓ **Your botanist should carefully review the new DCNR Botanical Survey Protocols available at <https://conservationexplorer.dcnr.pa.gov/content/survey-protocols>.** These protocols are recommended to ensure that all necessary information is collected and that survey reports are prepared properly. It is the expectation of DCNR that these protocols will be followed when conducting surveys for species under our jurisdiction.
- ✓ All target and non-target state-listed species found during the botanical survey should be reported to our office. **Please submit a completed Botanical Field Survey Form for each occurrence or population identified: <http://www.gis.dcnr.state.pa.us/PNDI/2015%20Field%20Survey%20Form.pdf>.** Mitigation measures and monitoring may be requested if state-listed species are found on or adjacent to the site.
- ✓ If preferred habitat does not exist on site, a survey may not be necessary. Please submit a habitat assessment report which describes the current land cover, habitat types, and species found on site.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an “Update” (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR’s jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth’s other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely



Greg Podnieszinski, Section Chief
Natural Heritage Section

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BUREAU OF FORESTRY

November 29, 2018

PNDI Number: 670193

Version: Final_1; 10/31/18

Kevin Clark

WHM Consulting, Inc.

2525 Green Tech Dr., Suite B

State College, PA 16803

Email: kevinc@whmgroup.com (hard copy will not follow)

Re: Leidy South Project

Clinton, Columbia, Luzerne, Lycoming, Shuylkill, PA

Dear Mr/Ms Doe,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 670193 (Final_1) for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

Potential Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the project vicinity. Based on a detailed PNDI review, DCNR determined potential impacts to the following threatened or endangered species or species of special concern.

Station 607 Maransky and Station 607 Hayfield:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Scirpus ancistrochaetus</i>	Northeastern Bulrush	Endangered	Threatened
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Leidy Line D 36" Hensel Replacement:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Scirpus ancistrochaetus</i>	Northeastern Bulrush	Endangered	Threatened
<i>Sorbus decora</i>	Showy Mountain-ash	Endangered	Endangered
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- ***Ribes lacustre* (Swamp Currant)**: documented in a moist shaded ravine; suitable habitat includes swamps and cold, wet woods; Flowers May - June
 - ***Gaultheria hispidula* (Creeping Snowberry)**: documented in flat wet woods; suitable habitat includes hummocks and tree stumps in bogs and swamps; Flowers June, fruits September
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- ✓ **Your botanist should carefully review the new DCNR Botanical Survey Protocols available at <https://conservationexplorer.dcnr.pa.gov/content/survey-protocols>.** These protocols are recommended to ensure that all necessary information is collected and that survey reports are prepared properly. It is the expectation of DCNR that these protocols will be followed when conducting surveys for species under our jurisdiction.
- ✓ All target and non-target state-listed species found during the botanical survey should be reported to our office. **Please submit a completed Botanical Field Survey Form for each occurrence or population identified: <http://www.gis.dcnr.state.pa.us/PNDI/2015%20Field%20Survey%20Form.pdf>.** Mitigation measures and monitoring may be requested if state-listed species are found on or adjacent to the site.
- ✓ If preferred habitat does not exist on site, a survey may not be necessary. Please submit a habitat assessment report which describes the current land cover, habitat types, and species found on site.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an “Update” (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR’s jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth’s other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely



Greg Podnieszinski, Section Chief
Natural Heritage Section

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From: [Kevin Clark](#)
To: ["Dogonniuck, Alexander"](#)
Cc: ["Henry, Josh"](#); [Richardson, Devyn](#); [Wardwell, Lindsay](#); ["Sheppard, Evan"](#)
Subject: RE: PNDI-670193 Leidy South Project
Date: Thursday, November 29, 2018 9:28:00 AM
Attachments: [Station_607_Hayfield_Photo_Documentation_112018.pdf](#)
[Station_607_Maransky_Photo_Documentation_112018.pdf](#)

Alex,

Thank you for your response regarding the Leidy South Project (Project). The Project is still in the initial phases and the siting of the potential 607 compressor station has not yet been finalized. Transco will stress avoidance and minimization of impacts to wetlands, streams, and forested areas to the maximum extent practicable. Wetlands delineations have not been completed at this time. Site photographs of the current potential 607 compressor station locations have been provided for your review. Additional data will be provided once surveys of these areas are completed.

Thanks,

Kevin Clark | PWS
Project Manager
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, PA 16803
(814) 689-1650 ext. 105



From: Dogonniuck, Alexander <c-adogonni@pa.gov>
Sent: Tuesday, November 06, 2018 8:44 AM
To: Kevin Clark <kevinc@whmgroup.com>
Subject: PNDI-670193 Leidy South Project

Hello Mr. Clark,

I have received your project and am reviewing it for potential impacts on threatened, endangered, and special concern species or resources. I am particularly interested in knowing more about the New Grassroots Compressor Station 607 (Luzerne) and Station 620 (Schuylkill). Have wetland delineations or surveys been conducted for the potential project areas. Do you have any site photos on file?

I am more concerned about Station 607 because it will be located in a wooded habitat and there are streams and wetland running through the site.

Please send any additional information you may have on these locations

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT G-4
PENNSYLVANIA GAME COMMISSION**



May 20, 2020

PGC ID Number: 201811010501 - Revision

Mr. Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, Pennsylvania 16803
kevinc@whmgroup.com

Re: *Transcontinental Gas Pipe Line Company, LLC (Transco) - Leidy South Project*
PNDI Receipt File: *project_receipt_leidy_south_project_670193_FINAL_5.pdf*
Multiple Townships, Multiple Counties, Pennsylvania

Dear Mr. Clark,

Thank you for submitting the Pennsylvania Natural Diversity Inventory (PNDI) Manual Project Submission Form for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only. This is an update to the letter issued on October 1, 2019 based on revisions to the limit of disturbance throughout the project area.

Potential Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. The PGC has received and thoroughly reviewed the information that you provided to this office, as well as PNDI data, and has determined that potential impacts to the following threatened, endangered, and species of special concern birds and mammals may be associated with your project. Therefore, additional measures may be necessary to avoid potential impacts to the species listed below.

Scientific Name	Common Name	PA Status	Federal Status
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	THREATENED	THREATENED

Next Steps

Northern long-eared bats: Northern long-eared bats are a federally listed threatened species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Northern long-eared bats to the U.S. Fish and Wildlife Service.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily

imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,



Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner



OAB/oab

cc: Schnupp
Brauning
Turner
Librandi Mumma
Figured
Wenner
File



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

May 7, 2020

**Re: Update PNDI Search ID: PNDI-670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

To Whom it May Concern:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), PNDI-670193. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were include in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to rare, candidate, threatened or endangered species.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (412) 713-0485 or contact me via e-mail at josh.henry@williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

Josh Henry
Environmental Specialist

Attachments: Attachment A: Mapping

cc: Shauna Akers, Transco
Kevin Clark, WHM Consulting, Inc.



May 30, 2019

PGC ID Number: 201811010501 - Revision

Mr. Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, Pennsylvania 16803
kevinc@whmgroupp.com

Re: *Transcontinental Gas Pipe Line Company, LLC (Transco) - Leidy South Project*
PNDI Receipt File: *project_receipt_leidy_south_project_670193_FINAL_3.pdf*
Multiple Townships, Clinton, Columbia, Luzerne, Lycoming, Schuylkill and Wyoming
Counties, Pennsylvania

Dear Mr. Clark,

Thank you for submitting the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt File *project_receipt_leidy_south_project_670193_FINAL_3.pdf* for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

Potential Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. The PGC has received and thoroughly reviewed the information that you provided to this office, as well as PNDI data, and has determined that potential impacts to the following threatened, endangered, and species of special concern birds and mammals may be associated with your project. Therefore, additional measures may be necessary to avoid potential impacts to the species listed below.

Scientific Name	Common Name	PA Status	Federal Status
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	ENDANGERED	THREATENED
N/A	Winter Bat Colony	SPECIAL CONCERN	N/A

Northern long-eared bats: Northern long-eared bats are a federally listed threatened species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Indiana bats to the U.S. Fish and Wildlife Service.

Winter Bat Colony: The following should be performed for the *Central Penn South Potential Compressor Station 620 Options C and G* so that a more accurate determination of impacts can be made:

- *Winter Hibernacula Habitat Assessment:* In order for the PGC to determine potential impacts to winter bat colonies located on and adjacent to the project area, a winter hibernacula habitat assessment is to be conducted on and within 1,000 feet (within 1/4 mile, if blasting is proposed) of the project area, following the *PGC Protocol for Assessing Abandoned Mines/Caves for Bat Surveys* which can be found in Appendix B of the attached *PGC Eastern Small-footed Bat Environmental Review Guidance Document*. Results of the winter hibernacula habitat assessment are to be submitted to the PGC no later than December 31st of the year the survey is conducted for review.
- Any openings identified during the Winter Hibernacula Habitat Assessment that met the criteria as having the potential as bat hibernacula will need to be surveyed in the fall to determine the presence or absence of bat species. A PGC special use permit needs to be obtained by the consultant in order to conduct any surveys that involve the handling of bats. Results of the fall sampling surveys are to be submitted to the PGC no later than December 31st of the year the survey is conducted. Survey results will be used by the PGC to determine what, if any avoidance and minimization measures need to be implemented.
- In addition to the above surveys, the PGC will require documentation regarding the connectivity between each of potential hibernacula located within 1/4 mile of the project area. Since this project may require blasting, the PGC is also concerned that the integrity of potential hibernacula within 1/4 mile of the project area may be jeopardized. Therefore, the Applicant must also provide documentation of how the structure, air flow, humidity, etc. at each potential hibernaculum within the 1,000-foot (1/4-mile, if blasting is required) radius will be maintained.

Central Penn North, Potential Compressor Station Option B appears to be located on or adjacent to **State Game Lands No. 206**. Please contact Mr. Michael Beahm, Land Management Supervisor, at 570-675-1143 to discuss and coordinate the project on State Game Lands.

Conservation Measure(s)

National Wetland Inventory Mapping (NWI) and/or aerial photos suggest that wetlands are located throughout the project area. The PGC is requesting that the final project avoid, or at least minimize to the greatest practical extent, any adverse impacts to these resources and their associated wildlife habitat.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,



Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner



OAB/oab

Enclosure: *PGC Eastern Small-footed Bat Environmental Review Guidance Document*

cc: Pamela Shellenberger, USFWS
Schnupp
Brauning
Turner
Librandi Mumma
Figured
Wenner
File



January 22, 2019

PGC ID Number: 201811010501

Mr. Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, Pennsylvania 16803
kevinc@whmgroup.com

Re: *Transcontinental Gas Pipe Line Company, LLC (Transco) - Leidy South Project*
PNDI Manual Project Submission
Multiple Townships, Multiple Counties, Pennsylvania

Dear Mr. Clark,

Thank you for submitting the Pennsylvania Natural Diversity Inventory (PNDI) Manual Project Submission Form for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

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<i>Myotis septentrionalis</i>	Northern Long-eared Bat	THREATENED	THREATENED

Next Steps

Northern long-eared bats: Northern long-eared bats are a federally listed threatened species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Northern long-eared bats to the U.S. Fish and Wildlife Service.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,



Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner



OAB/oab

cc: Pamela Shellenberger, USFWS
Schnupp
Brauning
Turner
Librandi Mumma
Figured
Wenner
File

From: [Kevin Clark](#)
To: olbraun@pa.gov
Cc: [Henry, Josh](#); [Richardson, Devyn](#); [Wardwell, Lindsay](#)
Subject: RE: Leidy South Project - PGC Request for Additional Information (PGC ID # 201811010501)
Date: Friday, January 11, 2019 12:52:00 PM
Attachments: [image001.jpg](#)
[Hilltop Loop Topo Project Location 010219.pdf](#)
[HILLTOP LOOP - Aerial and Photograph Location Map 011019.pdf](#)
[HILLTOP LOOP - Photographic Documentation.pdf](#)

Olivia,

Tree removal will be required to accommodate construction of the Leidy Line D 36" Hilltop Loop. Based on the currently proposed alignment and workspace requirements, ±25 acres of tree removal is anticipated along the pipeline ROW. In addition, some of the existing access roads proposed to be utilized for the project will likely require some minor tree clearing to allow for access of heavy equipment. Mapping has been provided that outlines the proposed Limits of Disturbance which includes: temporary workspace, permanent workspace, access roads and staging/support areas. In addition, photographic documentation has been provided to represent habitat within the area proposed to be impacted.

Thanks,
Kevin

From: Braun, Olivia <olbraun@pa.gov>
Sent: Tuesday, December 18, 2018 12:57 PM
To: Kevin Clark <kevinc@whmgroup.com>
Cc: devyn.richardson@williams.com; Henry, Josh <Josh.Henry@williams.com>; Wardwell, Lindsay <LWardwell@ene.com>
Subject: RE: [External] RE: Leidy South Project - PGC Request for Additional Information (PGC ID # 201811010501)

Hi Kevin,
Thanks for this additional information. It's very helpful and has provided much of the clarification we were hoping for.

However, according to the project narrative provided in October 2018, the pipeline facilities are going to be co-located within/adjacent to the existing Transco ROW and temporary and/or permanent ROW will need to be widened at varying widths to accommodate the construction of the loops and replacement. Can you provide additional information pertaining to the ROW needs for the Leidy Line D 36" Hilltop Loop? Will tree removal be required (if so, how much and where) and what is the existing and proposed width of the ROW going to be to accommodate this construction? Also, please provide any mapping that may be available to illustrate the temporary vs. permanent ROW and access roadways for this construction. Finally, if you have color photographs of the habitat within the area that is to be impacted by this loop and could provide them with a photo location map, it would be very helpful as well.

If you have any questions, please let me know.

Thanks,

Olivia A. Braun

Pennsylvania Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110
Phone: 717-787-4250, Extension 3128

From: Kevin Clark <kevinc@whmgroup.com>

Sent: Monday, December 17, 2018 8:52 AM

To: Braun, Olivia <olbraun@pa.gov>

Cc: devyn.richardson@williams.com; Henry, Josh <Josh.Henry@williams.com>; Wardwell, Lindsay <LWardwell@ene.com>

Subject: [External] RE: Leidy South Project - PGC Request for Additional Information (PGC ID # 201811010501)

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

Olivia,

Transcontinental Gas Pipe Line Company, LLC proposes to utilize the *Manual Project* for the review of this Project. The following information has been attached to this email:

1. USGS mapping including GPS coordinates for the center of the project area for compressor station locations and the eastern and western terminus for the pipeline segments; and
2. USGS map outlining the abutting Maransky and Hayfield Properties
 - a. Polygon shapefiles submitted for the Maransky and Hayfield properties are abutting. When viewed on the PNDI online mapper, these features show as only one polygon; however two shapefiles were submitted. A map has been provided for clarification purposes.

Work being proposed at Compressor Station 605 will not involve earth disturbance, but is considered part of the overall project. Please include a review of this location based on the scope of work proposed.

Thanks and let me know if you need any additional information to complete your initial review, and if hard copies are required of the initial submittal and updated mapping. Once further project information is obtained and field surveys are completed, the additional information will be provided

for your review.

Kevin Clark | PWS
Project Manager
WHM Consulting, Inc.
2525 Green Tech Drive; Suite B
State College, PA 16803
(814) 689-1650 ext. 105



From: Braun, Olivia <olbraun@pa.gov>
Sent: Thursday, December 06, 2018 2:43 PM
To: devyn.richardson@williams.com; Kevin Clark <kevinc@whmgroupp.com>
Subject: Leidy South Project - PGC Request for Additional Information (PGC ID # 201811010501)

Good Afternoon,

The PGC is in the process of reviewing the above referenced project and would like to request some additional information. At your earliest convenience, please provide the following information so that we may continue our review of this project.

- Both a PNDI receipt and a Manual Project submission form have been submitted for this project. Please confirm if the Applicant would like the PGC to handle this project as a Manual Project (by using the Manual Project submission form) or an online submission (by using the online PNDI Receipt # 670193). Then depending on whether the Applicant chooses to utilize the Manual Project Submission Form or the online PNDI submittal method, please provide the following information.
 - *Manual Project* – Please provide updated USGS mapping that includes the GPS coordinates for each location where work is anticipated or being considered.
 - *Online PNDI Submittal with PNDI Receipt # 670193* – Please update the polygon that was submitted into PNDI to include each location where work is anticipated or being considered. For example, the cover letter provided discusses 9 locations where work is anticipated or being considered. However, the PNDI polygon(s) reflect only 7 of those locations. Once the additional locations are included, please re-finalized the PNDI receipt so that all areas are included in the review.
- The PGC recognizes that as of the submittal date, field surveys have not yet been completed for this project. However, if established, please provide mapping and/or GIS shapefiles illustrating where tree removal, ROW widening, permanent or temporary workspaces, access roads, etc. are to be located for the activities included in this review.

If you have any questions, please let me know.

Thanks,

Olivia A. Braun

Pennsylvania Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110
Phone: 717-787-4250, Extension 3128

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT G-5
PENNSYLVANIA FISH AND BOAT COMMISSION**



Pennsylvania Fish & Boat Commission

Division of Environmental Services

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

May 11, 2020

IN REPLY REFER TO

SIR# 50327

WHM Consulting, Inc.
Kevin Clark
2525 Green Tech Drive
State College, Pennsylvania 16803

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 670193_5
Leidy South Project
CLINTON County: - COLUMBIA County: - LUZERNE County: - LYCOMING County:
- SCHUYLKILL County:**

Dear Kevin Clark:

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

According to this submission and our records there have been no changes in the project or on-site biological information; therefore, the Commission’s comments regarding potential impacts to rare, candidate, threatened, or endangered species under our jurisdiction, as detailed in our letter of _____ for SIR# , remain unchanged.

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

Our Mission:

www.fish.state.pa.us

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

If you have any questions regarding this review, please contact Jordan R. Allison at 814-359-5236 and refer to the SIR # 50327. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Jordan Allison". The signature is written in a cursive, flowing style.

Jordan R. Allison, Chief
Natural Gas Section

JRA/dn



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

May 7, 2020

**Re: Update PNDI Search ID: PNDI-670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

To Whom it May Concern:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), PNDI-670193. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were include in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to rare, candidate, threatened or endangered species.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (412) 713-0485 or contact me via e-mail at josh.henry@williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

Josh Henry
Environmental Specialist

Attachments: Attachment A: Mapping

cc: Shauna Akers, Transco
Kevin Clark, WHM Consulting, Inc.



Pennsylvania Fish & Boat Commission

Division of Environmental Services

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

August 26, 2019

IN REPLY REFER TO
SIR# 50327

WHM Consulting, Inc.
Kevin Clark
2525 Green Tech Drive
State College, Pennsylvania 16803

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 670193_5
Leidy South Project
CLINTON County: - COLUMBIA County: - LUZERNE County: - LYCOMING County:
- SCHUYLKILL County:**

Dear Kevin Clark:

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

According to this submission and our records there have been minor changes in the project since your last submission. However, the Commission’s comments regarding potential impacts to rare, candidate, threatened, or endangered species under our jurisdiction, as detailed in our letter of August 21st, 2019 for SIR# 50327, remain unchanged.

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

Our Mission:

www.fish.state.pa.us

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

If you have any questions regarding this review, please contact Jordan R. Allison at 815-349-4236 and refer to the SIR # 40327. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Jordan Allison". The signature is written in a cursive, flowing style.

Jordan R. Allison, Chief
Natural Gas Section

JRA/dn



Pennsylvania Fish & Boat Commission

Division of Environmental Services

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

August 21, 2019

IN REPLY REFER TO
SIR# 50327

WHM Consulting, Inc.
Kevin Clark
2525 Green Tech Drive
State College, Pennsylvania 16803

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 670193_1
Leid5 Soyth Project
CLINTON Coynt5: j COL- U MA Coynt5: j L- BERNE Coynt5: j LYCOU INZ Coynt5:
j SCG- YLHILL Coynt5:**

Dear Kevin Clark:

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

We have received the results of your Phase I Timber Rattlesnake Habitat Assessment and Phase II Denning which were completed in April and May of this year. Your staff confirmed the presence of Timber Rattlesnakes at six den/gestation sites located on or adjacent to the limit of disturbance for the Hensel Replacement portion of the project and three sites for the Hill Top Loop portion. Of the nine confirmed denning sites all but one, the Hilltop Loop habitat area eight, were able to be avoided. Additionally, impacts to potential and occupied gestation habitat are proposed at multiple locations along the Hensel Replacement portion of the project. No impacts to these habitats are proposed for the Hilltop Loop. In order to avoid impacts to denning Timber Rattlesnakes and mitigate impacts to potential and occupied gestation habitat, the commission recommends the following avoidance measures:

- 1.) All blasting within 50 feet of confirmed denning habitats should occur between May 15th and October 1st to avoid impacts to snakes occupying these sites. If blasting is proposed during this timeframe within 300 feet of a den site, please consult with this office prior to doing so.

Our Mission:

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

- 2.) We recommend that gestation habitat impacted during construction be recreated in accordance with our "Guidelines for Timber Rattlesnake Habitat creation". I have attached a copy of this document for your convenience.

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

If you have any questions regarding this review, please contact Jordan R. Allison at J18j349j 4236 and refer to the SIR # 40327. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in dark ink that reads "Jordan Allison". The signature is written in a cursive, flowing style.

Jordan R. Allison, Chief
Natural Gas Section

JRA/dn



July 24, 2019

Jordan Allison, Fisheries Biologist
PFBC Centre Region Office
595 E Rolling Ridge Drive
Bellefonte, PA 16823

**RE: TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC; LEIDY SOUTH PROJECT;
TIMBER RATTLESNAKE (*Crotalus horridus*) PHASE I HABITAT ASSESSMENT &
PHASE II PRESENCE/ABSENCE DENNING SURVEY REPORT; SIR #50327; PNDI
SEARCH NO. 670193; CLINTON & SCHUYLKILL COUNTY, PENNSYLVANIA**

Dear Mr. Allison,

On behalf of Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. (Williams), WHM Consulting, Inc. (WHM) conducted Phase I Habitat Assessment and Phase II Presence/Absence Denning Surveys for the timber rattlesnake (*Crotalus horridus*) associated with the Leidy South Project. Phase I & II surveys were conducted for the Hensel Replacement and Hilltop Loop in Clinton Counties, and a Phase I survey was conducted for Compressor Station 620 in Schuylkill County. The habitat assessment and surveys were conducted in April and May of 2019.

Enclosed you will find one copy of the Timber Rattlesnake Habitat Assessment & Presence/Absence Survey Report for your review. This report includes proposed mitigation measures for the project.

If you have any questions regarding this correspondence, please do not hesitate to call me at (814) 689-1650 or contact me via e-mail at kevinc@whmgroup.com. Alternatively, you can contact Devyn Richardson with Transco at (713) 215-2781 or via e-mail at Devyn.Richardson@Williams.com.

Sincerely,

WHM Consulting, Inc.

A handwritten signature in black ink, appearing to read "Kevin Clark", written over a light gray background.

Kevin Clark
Project Manager

cc: Devyn Richardson, Transco
Josh Henry, Transco

From: [Allison, Jordan](#)
To: [Kevin Clark](#)
Subject: RE: [External] PNDI-670193 Update (Leidy South Project)
Date: Tuesday, June 4, 2019 11:03:50 AM
Attachments: [image001.jpg](#)

Kevin,

Thank you for sending notifying us of the updated PNDI for proposed changes to the Leidy South Project. I have reviewed the updated PNDI and have no additional comments/recommendations to offer beyond what was expressed in our November 20th, 2018 letter for SIR# 50327. Should you have any additional questions, please feel free to get in touch.

Thanks,

Jordan Allison, Fisheries Biologist
Natural Gas Section
PFBC Centre Region Office
595 E Rolling Ridge DR
Bellefonte, PA 16823

814-359-5236

-The gods do not deduct from man's allotted span the hours spent in fishing-

From: Kevin Clark <kevinc@whmgroup.com>
Sent: Monday, April 15, 2019 3:27 PM
To: Allison, Jordan <jorallison@pa.gov>; Dogonniuck, Alexander <c-adogonni@pa.gov>; Braun, Olivia <olbraun@pa.gov>
Cc: Richardson, Devyn <Devyn.Richardson@williams.com>; Henry, Josh <Josh.Henry@williams.com>
Subject: [External] PNDI-670193 Update (Leidy South Project)

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

To all:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the original PNDI Online Large Project Review for the Leidy South Project (Project) submitted on October 31, 2018. This update provides additional project information and details since the previous submission. The information is attached to this email, as well as uploaded on the PNDI website. Should the Project, as presented, indicate the need for additional species-specific field studies or indicate other Project

considerations, please provide a response outlining those requirements.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to contact Devyn Richardson at (713) 215-2781 or Devyn.Richardson@Williams.com. Alternatively, you can contact me at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Kevin M. Clark | PWS
Project Manager
WHM Consulting, LLC (dba WHM Consulting, Inc)
(814) 689-1650 ext. 105





Pennsylvania Fish & Boat Commission

Division of Environmental Services

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

November 20, 2018

IN REPLY REFER TO
SIR# 50327

WHM Consulting, Inc.
Kevin Clark
2525 Green Tech Drive
State College, Pennsylvania 16803

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 670193_1
Leidy South Project
CLINTON County: - COLUMBIA County: - LUZERNE County: - LYCOMING County:
- SCHUYLKILL County:**

Dear Kevin Clark:

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

Timber Rattlesnake (*Crotalus horridus*, Species of Special Concern)

Timber Rattlesnakes occur in the forested, mountainous regions of the Commonwealth. They prefer forested areas to forage for small mammals (e.g., mice and chipmunks) and southerly-facing slopes for hibernating and other thermoregulatory activities. The Timber Rattlesnake is threatened by habitat loss/alteration, wanton killing, and poaching.

Given the proximity of the project to known Timber Rattlesnake occurrences, we recommend that a habitat assessment be conducted in the project area by a qualified Timber Rattlesnake surveyor to determine if the project is likely to impact the species. The habitat assessment will not be necessary at all project locations included with the PNDI submission but are especially important near the Leidy Line D Hensel Replacement Project in Clinton County, the Hill Top Pipeline Loop Expansion Project in Clinton County and Potential Grass Roots Compressor Station 620-1 location in Schuylkill County. We have included a list of qualified surveyors and habitat assessment protocol for your convenience.

Our Mission:

www.fish.state.pa.us

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

The list is not exhaustive as there may be qualified surveyors who have not asked to be placed on this list. Additionally, it is not mandatory that you use someone on this list. Should you choose to complete the habitat assessment, the qualified surveyor should submit a report to this office for review and comment. The habitat survey report should include color photographs of the project area (keyed to a site map or diagram) and a description of habitats occurring within the immediate area to be developed (including access roads), as well as the surrounding area. Potential Timber Rattlesnake critical habitat (denning/gestating areas) should be photographed and mapped accordingly. In addition, the report should also include detailed project plans and maps with a description of the proposed work (including access roads), project impacts and alternatives. Pending the review of this information, a survey targeting the presence of the Timber Rattlesnake in the project area and/or other project modifications may be requested.

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

If you have any questions regarding this review, please contact Jordan R. Allison at 814-359-5236 and refer to the SIR # 50327. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in dark ink that reads "Jordan Allison". The signature is written in a cursive, flowing style.

Jordan R. Allison, Chief
Natural Gas Section

JRA/dn

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT G-6
UNITED STATES FISH AND WILDLIFE SERVICE**

Kevin Clark

From: Shellenberger, Pamela <pamela_shellenberger@fws.gov>
Sent: Wednesday, May 20, 2020 5:07 PM
To: Kevin Clark
Cc: Akers, Shauna; Henry, Josh
Subject: Re: [EXTERNAL] RE: UPDATE - USFWS Project # 2019-0122; PNDI Receipt #670193; Consultation Code: 05E2PA00-2020-TA-0204

Kevin,

Thank you for providing additional information regarding the minor workspace changes on the Benton Loop, Hilltop Loop and Hensel Replacement projects associated with the Leidy South Project. You indicated that all changes outlined will take place in previously disturbed areas with no additional tree clearing or water resources impacts proposed, and that the changes in the workspace are minor. Therefore, determinations in our letters of June 24, 2019 and October 1, 2019 remain unchanged.

Please let me know if you have any questions.
Thank you,

Pamela Shellenberger

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, PA 16801
814-234-4090 x7459
<http://www.fws.gov/northeast/pafo/>

Working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

Note: I am temporarily teleworking. You can continue to reach me through email or by calling the number listed above.

From: Kevin Clark <kevinc@whmgroup.com>
Sent: Thursday, May 7, 2020 11:07 AM
To: Shellenberger, Pamela <pamela_shellenberger@fws.gov>
Cc: Akers, Shauna <Shauna.Akers@williams.com>; Henry, Josh <Josh.Henry@williams.com>
Subject: [EXTERNAL] RE: UPDATE - USFWS Project # 2019-0122; PNDI Receipt #670193; Consultation Code: 05E2PA00-2020-TA-0204

Pam,

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), USFWS Project # 2019-0122, PNDI-670193, Consultation Code: 05E2PA00-2020-TA-0204. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were included in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to threatened or endangered species. All changes outlined will take place in previously disturbed areas with no additional tree clearing or water resources impacts proposed.

I appreciate your assistance, and thank you for your attention to this request.

Kevin M. Clark | PWS

Senior Project Manager / Office Manager

WHM Consulting, LLC

(814) 689-1650 ext. 105 - office

(814) 404-6241 - cell



If you have received this message in error, please reply to advise the sender of the error and then immediately delete this message.



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

May 7, 2020

**Re: Update PNDI Search ID: PNDI-670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

To Whom it May Concern:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), PNDI-670193. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were include in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to rare, candidate, threatened or endangered species.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (412) 713-0485 or contact me via e-mail at josh.henry@williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

Josh Henry
Environmental Specialist

Attachments: Attachment A: Mapping

cc: Shauna Akers, Transco
Kevin Clark, WHM Consulting, Inc.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
Phone: (814) 234-4090 Fax: (814) 234-0748
<http://www.fws.gov/northeast/pafo/>

In Reply Refer To:

November 14, 2019

Consultation Code: 05E2PA00-2020-TA-0204

Event Code: 05E2PA00-2020-E-00976

Project Name: Leidy South Project

Subject: Verification letter for the 'Leidy South Project' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Kevin Clark:

The U.S. Fish and Wildlife Service (Service) received on November 14, 2019 your effects determination for the 'Leidy South Project' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"^[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Bog Turtle, *Clemmys muhlenbergii* (Threatened)
- Indiana Bat, *Myotis sodalis* (Endangered)
- Northeastern Bulrush, *Scirpus ancistrochaetus* (Endangered)

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Leidy South Project

2. Description

The following description was provided for the project 'Leidy South Project':

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. is proposing the Leidy South Project (Project). The Project is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Transco's Zone 6 includes the portion of the Transco system in Pennsylvania, New York, New Jersey, and Maryland. The Project consists of the following components:

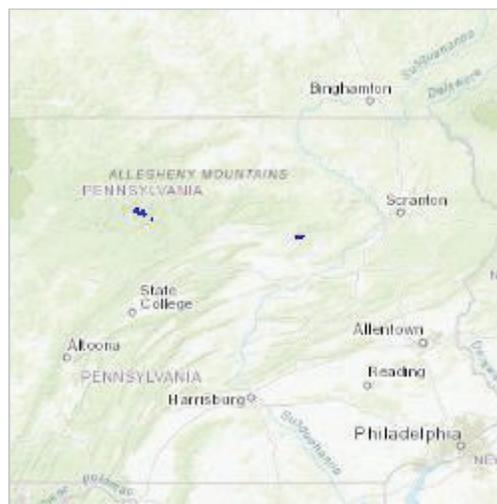
- 6.3 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hensel Replacement) and the related abandonment of 5.8 miles of existing 23.375-inch pipeline on Leidy Line A;
 - 2.4 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hilltop Loop);
 - 3.5 miles of 42-inch pipeline loop along Transco's Leidy Line in Lycoming County, Pennsylvania (Benton Loop);
 - Existing Compressor Station 605 (Wyoming County, Pennsylvania); Increase the total certificated horsepower of the two electric motor-driven units from 30,000 horsepower (HP) to 42,000 HP and modifications to existing coolers;
 - New Compressor Station 607 (Luzerne County, Pennsylvania); Install two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization [ISO] conditions each, 46,930 HP total) and gas coolers;
 - Existing Compressor Station 610 (Columbia County, Pennsylvania); o Add one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions) and gas cooling; Increase the total certificated horsepower of the two electric motor-driven units from 40,000 HP to 42,000 HP and re-wheel the existing compressors;
 - New Compressor Station 620 (Schuylkill County, Pennsylvania); o Install one
-

gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions);

- Ancillary facilities, such as mainline valves (MLVs), communication facilities, cathodic protection and pig launchers and receivers in Pennsylvania.

Subject to the Federal Energy Regulatory Commission (FERC) approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.299238244285945N76.22241376288787W>



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")
No
3. Will your activity purposefully **Take** northern long-eared bats?
No
4. Is the project action area located wholly outside the White-nose Syndrome Zone?
Automatically answered
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?
No
-

7. Will the action involve Tree Removal?

Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

70

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?
0



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

October 1, 2019

Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, PA 16803

RE: USFWS Project #2019-0122
PNDI Receipt #670193

Dear Mr. Clark:

The U.S. Fish and Wildlife Service (Service) received your survey report of August 12, 2019, regarding information about federally threatened and endangered species within the area affected by the Transcontinental Gas Pipe Line Company's proposed Leidy South project, portions of which are in Clinton, Columbia, Luzerne, Lycoming, Schuylkill, and Wyoming Counties, Pennsylvania. The proposed project is located within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered and the northern long-eared bat (*Myotis septentrionalis*), a species that is federally listed as threatened. The project is also within the known range of the northeastern bulrush (*Scirpus ancistrochaetus*), a federally listed, endangered plant.

The proposed project involves infrastructure improvement, construction, or modification along an existing gas pipeline, including seven separate facilities (three sections of pipeline replacement or loop sections comprising approximately 11.78 miles). Additional information was provided in your email of August 21, 2019, which included an updated PNDI receipt to reflect changes in the project limits of disturbance (LOD); and your email of September 30, 2019, which provided additional information on wetland impacts. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

Indiana bat and northern long-eared bat

Please see our comments regarding impacts to bats from tree removal in our letter of June 24, 2019. In addition, regarding potential impacts from compressor stations, compressor station 607 (Option B) and compressor station 620 (Options B, C, & G) outlined in previous submittals have

been removed; and the company is selecting compressor station 620 Option A, which is located in a farm field, with no wetland, stream, tree or hibernacula impacts.

Northeastern bulrush

PRIVILEGED

This response relates only to endangered and threatened species under our jurisdiction, based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

Please contact Pamela Shellenberger of this office at (814) 206-7459 if you have any questions or require further assistance regarding this matter.

Sincerely,



Sonja Jahrsdoerfer
Project Leader



August 28, 2019

Sonja Jahrsdoerfer, Project Leader
United States Department of Interior
Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, PA 16801-4850

**RE: TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC; LEIDY SOUTH PROJECT;
DCNR & USFWS BOTANICAL SURVEY REPORT; USFWS PROJECT NO. 2019-
0122; PNDI RECEIPT NO. 670193; CLINTON, LYCOMING & LUZERNE COUNTY,
PENNSYLVANIA**

Dear Ms. Jahrsdoerfer,

On behalf of Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. (Williams), WHM Consulting, Inc. (WHM) conducted Botanical Surveys associated with the Leidy South Project. Botanical surveys were conducted for the Hensel Replacement, Hilltop Loop, Benton Loop and Compressor Station 607 in Clinton, Lycoming and Luzerne Counties. The surveys were conducted between May and July of 2019.

Enclosed you will find one copy of the 2019 DCNR & USFWS Botanical Survey Report for your review. This report includes proposed avoidance and minimization measures for potential impacts associated with *Scirpus ancistrochaetus* (northeastern bulrush) that was identified outside the proposed Limit of Disturbance during the surveys. The botanical survey report also includes information on target species under the PA DCNR's jurisdiction.

If you have any questions regarding this correspondence, please do not hesitate to call me at (814) 689-1650 or contact me via e-mail at kevinc@whmgroup.com. Alternatively, you can contact Josh Henry with Transco at (412) 713-0485 or via e-mail at Josh.Henry@Williams.com.

Sincerely,

WHM Consulting, Inc.

A handwritten signature in black ink, appearing to read "Kevin Clark", is written over a light blue horizontal line.

Kevin Clark
Project Manager

cc: Josh Henry, Transco



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

June 24, 2019

Devyn Richardson
Williams Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Blvd (77056)
P.O. Box 1396
Houston, TX 77251-1396

RE: USFWS Project #2019-0122

Dear Ms. Richardson:

Thank you for your letter of April 15, 2019, regarding information about federally listed and proposed endangered and threatened species within the area affected by Williams Transcontinental Gas Pipe Line Company, LLC's, updates to the Leidy South project that encompasses: Benton Loop, Lycoming and Columbia Counties; Hilltop Loop, Clinton County; Hensel Replacement, Clinton County; Compressor State 605, Wyoming County; Compressor Station 607, Luzerne County (2 potential options being evaluated); Compressor Station 610, Columbia County; and Compressor Station 620, Schuylkill County (4 options being evaluated). The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species and the Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) to ensure the protection of migratory bird species.

The project description consists of updates to the previously submitted project of October 31, 2018.

Federally Listed Species

The proposed project is located within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered and the federally threatened northern long-eared bat (*Myotis septentrionalis*). Additionally, the project is within the known range of the northeastern bulrush (*Scirpus ancistrochaetus*), a federally listed, endangered plant.

Bats

Tree removal

Land-clearing associated with the project may result in the death or injury of roosting Indiana bats if tree-cutting is conducted during the time of year when bats may be present. Due to the potential for Indiana bats to occur within the project area, the Service recommends that measures be implemented to avoid killing or injuring them. This can be accomplished by carrying out tree-cutting activities from November 15 to March 31, during which time bats are hibernating or concentrated near their hibernacula. This seasonal recommendation on tree cutting applies to trees that are greater than or equal to 5 inches in diameter at breast height (DBH). Where possible, retain shagbark hickory trees, dead and dying trees, and large diameter trees (greater than 12 inches DBH) to serve as roost trees for bats. Where possible, also retain forested riparian corridors and forested wetlands.

If you are unable to adopt the tree-cutting restrictions detailed above, a bat survey of the project area should be conducted between May 15 and August 15 by a qualified, Service-approved biologist using the 2019 INDIANA BAT SUMMER SURVEY GUIDELINES, which can be found at the following link: <http://www.fws.gov/northeast/pafo/endangered/surveys.html>. Survey results should be submitted to the Service for review and concurrence.

Please advise this office as to whether you intend to conduct bat surveys, or assume bats are present and implement a seasonal restriction on tree-cutting.

4(d) Rule – northern long-eared bats

PRIVILEGED

Federal actions that cause incidental take that is **not** prohibited under the 4(d) rule may still affect individual northern long-eared bats. Under section 7 of the Endangered Species Act, a Federal action agency (FERC) must consult with the Service if their action may affect a listed species, which includes effects to individuals. This requirement does not change when a 4(d) rule is implemented. However, for the northern long-eared bat 4(d) rule, the Service has provided a framework to streamline section 7 consultations when Federal actions may affect the northern long-eared bat but not cause prohibited take.

FERC may fulfill its project-specific section 7 responsibilities by using the Service's framework. The framework relies on the finding of a programmatic biological opinion that the Service prepared for the northern long-eared bat 4(d) rule. The Service requests FERC use the online determination key available through our Information Planning and Consultation website – IPaC (<https://ecos.fws.gov/ipac/>).

Hibernacula

To determine whether this project will affect any potential Indiana bat or northern long-eared bat hibernacula, a ½-mile area around Compressor Station 620 (Options C and G) was surveyed for potential cave and mine openings by Sanders Environmental, Inc¹. Surveys were conducted on April 17, 30, and May 31, 2019, at Option G and 21 openings were considered potential habitat. Surveys were conducted at Option C on June 3, 2019, and no potential hibernacula were identified.

On May 30, 2019, Pam Shellenberger, of my office, met with your company, WHM, FERC, Pennsylvania Game Commission (PGC), and Sanders Environmental Inc., to discuss Option G. During that time, the Service recommended that impacts to the portals and the area in the immediate vicinity of these openings be avoided. However, if avoidance is not feasible, these portals should be surveyed by a qualified bat surveyor. Surveys should be carried out in accordance with survey protocols and a copy of the survey results should be submitted to the Service and the PGC for review and concurrence. If surveys cannot be conducted, another option is to assume presence of federally listed bats in these portals and FERC would consult with the Service through Section 7 formal consultation. At this time, the company is planning to conduct fall portal surveys.

Prior to conducting any survey, the PGC should be contacted to determine whether or not they have surveyed the cave/mine in the past. If adequate surveys have been conducted in the recent past, this may preclude the need to conduct additional surveys.

Should Indiana bats or northern long-eared bats be found during any survey, further consultation with the Service will be necessary, including the submission of detailed project plans, and an analysis of alternatives to avoid and minimize adverse effects.

Northeastern bulrush

Potential habitat for this species could be affected if the project will directly or indirectly affect wetlands. The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

To conserve northeastern bulrush (if present) and other wetland-dependent species of concern, project-related activities should avoid adversely affecting the surface and groundwater recharge areas. This would include establishment of 300-foot wide upland buffer areas around wetlands, as well as 50-100 foot wide buffers along waterways (perennial and intermittent rivers, streams, creeks and tributaries). When adequately vegetated, these buffers will act to filter pollutants and stabilize streambanks. Earth disturbance, spraying or tree-cutting activities (tree felling, skid

¹ Portal searches only occurred at Compressor Station 620 Options C and G due to the past mining that has occurred under and surrounding these potential sites. The Service did not recommend any other portal searches for the other options or loops in previous correspondence.

trails etc.), should not occur in these wetlands and their buffers. If these buffers are included, implementation of the proposed project is not likely to adversely affect the northeastern bulrush.

If you are unable to adopt the buffers detailed above, we recommend that a qualified botanist with field experience in the identification of this species conduct a thorough survey of all potentially suitable wetland habitat within the proposed project area to determine the presence of the northeastern bulrush before any permits are approved or earth-moving activities begin.

Surveys for this species should be conducted between June 1 and September 30, when the flowering/fruitleting culm is present. A survey report should be submitted to the Service for review and comment.

Please notify this office whether buffers will be adopted as part of this project, or alternatively if surveys will be conducted for this species.

Assessment of Risks to Migratory Birds

The Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior.

You have indicated that you plan to minimize potential impacts by scheduling construction during seasons when migratory birds are not present or nesting in the project areas. The Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented. Thank you for considering impacts to migratory birds.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding this matter, please contact Pamela Shellenberger of my staff at 814-206-7459.

Sincerely,



Sonja Jahrsdoerfer
Project Leader

cc: David Hanobic – FERC



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

April 15, 2019

Robert Anderson | Supervisory Fish and Wildlife Biologist
United States Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801

**Re: Update USFWS Project # 2019-0122; PNDI Receipt#670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

Mr. Anderson,

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the original PNDI Online Large Project Review for the Leidy South Project (Project) submitted on October 31, 2018. In respect to the overall Project scope, one clarification has been made for the Hensel Replacement; which now includes the abandonment of 3.4 miles of the existing 23.375-inch Leidy Line A. Transco is also evaluating several site alternatives for Compressor Station 620 (Options A, B, C & G). Only one "Option" for Compressor Stations 607 & 620 will be selected.

This update provides additional details since the previous submission, including the information requested in the March 5, 2019, USFWS correspondence letter pertaining to forest habitat removal and wetland disturbance. In addition, a summary of the northern long-eared bat (NLEB) data from the Atlantic Sunrise (ASR) Project is being provided as ASR and the proposed Project have overlapping workspace. As part of ASR, additional mist net surveys were conducted within the vicinity of the proposed Project area.

Project Updates

The following Project information, which summarizes updates since the previous submission, is provided to facilitate your review:

Leidy Segments – Pipeline Facilities

- Defined workspaces associated with pipeline installation;
 - Benton Loop
 - Includes both the proposed alternative and two route alternatives to the south of the proposed pipeline.
 - Hilltop Loop

- Includes the proposed alternative.
- Hensel Replacement
 - Includes the proposed alternative, alternative locations for the valve placement, abandonment workspace, and the alternatives associated with a potential Horizontal Directional Drill through the Tamarack Swamp.
- Contractor Staging Area locations; and,
- Access roads to be utilized for the project.

Central Penn North

- Renamed Potential Compressor Station 607 Maransky as 607 Option A and 607 Hayfield as 607 Option B.

Central Penn South

- Renamed Potential Compressor Station 620-1 as 620 Option A;
- Removed Potential Compressor Station 620-5-1 from consideration; and,
- Added Potential Compressor Station 620 Options B, C & G.

Data Request – Forest Habitat Removal and Wetland Disturbance

Forested habitat removal estimates are based on surveyed treeline data for the Benton & Hilltop Loops. For all other facilities, the most recent aerial imagery was utilized. Wetland disturbance estimates are based on surveyed delineation data for the Benton Loop and CS 607 – Option B. For all other facilities, preliminary wetlands data was based on a desktop evaluation / remote sensing, and/or, where land permission has been granted, a field investigation during the non-growing season with frozen soils present.

The below summary table outlines estimated acreages of forest habitat removal and wetland disturbances based on the proposed Limits of Disturbance (LOD) for Benton Loop, Hilltop Loop, Hensel Replacement, Compressor Station 607 Option A, Compressor Station 620 Option A and Compressor Station 610. For Compressor Station 607 Option B and Compressor Station 620 Options B, C & G preliminary workspaces have not been developed to date; however, forest habitat removal and wetland disturbance will be minimized to the extent practical.

Table 1 - Summary of Estimated Forest Removal & Wetland Disturbance

PROPOSED FACILITIES	COUNTY	FOREST HABITAT REMOVAL (AC)¹	WETLAND IMPACT (AC)²
Benton Loop	Lycoming & Columbia	17.7	1.88
Hilltop Loop	Clinton	27.3	<2
Hensel Replacement	Clinton	22.5	<3
CS 605 ⁴	Wyoming	0	0
CS 607 – Option A ³	Luzerne	<2	<0.5
CS 607 – Option B ³	Luzerne	30 – 40	+/- 1
CS 610	Columbia	0	0

CS 620 – Option A ³	Schuylkill	0.55	0.52
CS 620 – Option B ³	Schuylkill	<1	<1
CS 620 – Option C ³	Schuylkill	<5	<1
CS 620 – Option G ³	Schuylkill	30 – 40	+/- 1
Notes:			
1. Forested habitat removal estimates are based on surveyed treeline data for the Benton & Hilltop Loops. For all other facilities, the most recent aerial imagery was utilized			
2. Wetland disturbance estimates are based on surveyed delineation data for the Benton Loop and CS 607 – Option B. For all other facilities, preliminary wetlands data was based on a desktop evaluation / remote sensing, and/or a field investigation during the non-growing season with frozen soils (where land permission has been granted).			
3. Only one "Option" for Compressor Stations 607 & 620 will be selected.			
4. No earth disturbance proposed at CS 605.			

Northern Long Eared Bat (NLEB) Data from Atlantic Sunrise (ASR) Project

PRIVILEGED

PRIVILEGED

Updated mapping is provided in Attachment A. Also, mapping and Google Earth kmz files have been uploaded on the PNDI website. Should the Project, as presented, indicate the need for additional species-specific field studies or indicate other Project considerations, please provide a response outlining those requirements. If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (713) 215-2781 or contact me via e-mail at Devyn.Richardson@Williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

A handwritten signature in blue ink, appearing to read "Devyn Richardson".

Devyn Richardson
Sr. Environmental Project Manager

Attachments: Attachment A: Project Location Maps

cc: Olivia Braun, Pennsylvania Game Commission
 Josh Henry, Transco
 Kevin Clark, WHM Consulting, Inc.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

March 5, 2019

Devyn Richardson
Transcontinental Gas Pipe Line Company, L.L.C.
2800 Post Oak Boulevard (77-56)
P.O. Box 1396
Houston, TX 77251-1396

RE: USFWS Project #2019-0122
PNDI Receipt #670193

Dear Mr. Richardson:

Thank you for your letter dated October 31, 2018, requesting information about federally listed and proposed endangered and threatened species within the area affected by the Transcontinental Gas Pipe Line Company's proposed Leidy South project, portions of which are Clinton, Columbia, Luzern, Lycoming, Schuylkill, and Wyoming Counties, Pennsylvania. The proposed project is located within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered and the northern long-eared bat (*Myotis septentrionalis*), a species that is federally listed as threatened. The project is also within the known range of the northeastern bulrush (*Scirpus ancistrochaetus*), a federally listed, endangered plant.

The proposed project involves infrastructure improvement, construction, or modification along an existing gas pipeline, including seven separate facilities (three sections of pipeline replacement or loop sections comprising approximately 11.78 miles and 4 compressor stations). Project design is preliminary and no information is provided regarding possible habitat effects but you do commit, to the extent possible, that all features will be constructed in the right-of-way of the existing pipeline although widening may be required in some locations.

The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

Indiana bat and Northern long-eared bat

Indiana bats and northern long-eared bats hibernate in caves and mines during the winter months (November through March), and use a variety of upland, wetland and riparian habitats during the

spring, summer and fall. Both bat species usually roost in dead or living trees with exfoliating bark, or living or dead trees with crevices or cavities. The female bats form nursery colonies under the exfoliating bark of dead or living trees, such as shagbark hickory, in upland or riparian areas. However, a variety of tree species such as black birch, red and white oak, and sugar maple are also used. Land-clearing, especially of forested areas, may adversely affect Indiana bats and northern long-eared bats by killing, injuring or harassing roosting bats, and by removing or reducing the quality of foraging and roosting habitat.

Proposed pipeline sections in Clinton County are in proximity to several northern long-eared bat captures. On February 16, 2016, a special conservation rule (i.e., 4(d) rule) was adopted that tailors protections for the northern long-eared bat under the Endangered Species Act (81 FR 1900). Incidental take that occurs as a result of tree removal that is not within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet from a known, occupied maternity roost tree is not prohibited in accordance with the 4(d) rule.

While take that may occur under the provisions of the 4(d) rule is not prohibited under the Act, when tree removal occurs throughout northern long-eared bat range, and the project is authorized, funded, or permitted by a Federal agency, consultation under section 7 of the Act is required. The Service completed a nationwide biological opinion that fulfills this requirement, provided the conditions of the 4(d) rule are implemented. More information about the programmatic consultation and the streamlined procedures to meet this requirement are detailed at: <http://www.fws.gov/midwest/endangered/mammals/nleb/>.

Northeastern bulrush

Potential habitat for this species could be affected if project implementation will directly or indirectly affect wetlands. The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

The Fish and Wildlife Service recommends that a qualified botanist with field experience in the identification of this species conduct a thorough survey¹ of all potentially suitable wetland habitat within any proposed project areas to determine the presence of the northeastern bulrush. Surveys for this species should be conducted between June 1 and September 30, when the flowering/fruitleting culm is present. A survey report should be submitted to the Service for review and comment. A list of botanists skilled in the location and identification of the northeastern bulrush is available here: https://www.fws.gov/northeast/pafo/pdf/Bulrush_qualified_10302018.pdf.

¹ When suitable habitat for a listed species is present and effects to the species are reasonably foreseeable, the Service recommends species surveys to enable fact-specific analysis of effects and fact-specific development of conservation measures. Rather than conduct habitat and/or species surveys, a project proponent and action agency may choose to assume presence of the species. However, assuming presence usually makes the analysis of effects significantly more difficult (because the specific nature of the species' presence is not known) and can lead to the incorporation of conservation measures that might otherwise not be needed if surveys were to be conducted and the species were not to be found.

Submission of more detailed project information to this office, particularly regarding the extent of forest habitat removal and wetland disturbance, will be necessary in order to determine whether either bat species or northeastern bulrush may be affected, and whether surveys or further consultation is necessary.

This response relates only to endangered and threatened species under our jurisdiction, based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

Please contact Robert Anderson of this office at (814) 234-4090 if you have any questions or require further assistance regarding this matter.

Sincerely,

A handwritten signature in black ink that reads "Sonja Jahrsdoerfer". The signature is written in a cursive style with a large, prominent "S" at the beginning.

Sonja Jahrsdoerfer
Project Leader



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

October 31, 2018

Pamela Shellenberger | Fish & Wildlife Biologist
Endangered Species Program
110 Radnor Rd; Suite 101
State College, PA 16801

**Re: PNDI Project Submission for Environmental Review
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project
PNDI Search ID: PNDI-670193**

Dear Ms. Shellenberger:

Transcontinental Gas Pipe Line Company, LLC (Transco) is initiating permitting activities for the proposed Leidy South Project (Project) along Transco's existing natural gas transmission system. The Project is an expansion of Transco's system designed to provide firm transportation capacity of 580,000 dekatherms per day (Dth/d) from northern and western Pennsylvania to Transco's River Road interconnect in Lancaster County, Pennsylvania. The target in-service date is December 1, 2021. The Project consists of the following primary components:

Leidy Segments

Table 1 Leidy Segment - Pipeline Facilities			
Facility Type	Township	County	Length (miles)
Leidy Line D Hensel Replacement (L188.51 to L194.00)			
36-inch pipeline	Chapman & Leidy	Clinton	6.09
Leidy Line D Hilltop Loop (L183.55 to L186.01)			
36-inch pipeline	Chapman	Clinton	2.46
Leidy Line D Benton Loop (L116.87 to L120.42)			
42-inch pipeline	Jackson	Lycoming	3.55
Project Total			11.78

The Pipeline Facilities would be co-located within/adjacent to the existing Transco right-of-way (ROW), to the extent possible. The temporary and/or permanent ROW will need to be widened at varying widths to accommodate the construction of the loops and replacement. Mapping depicting the location of the proposed Hensel Replacement, Hilltop Loop, and Benton Loop is provided in Attachment B.

Central Penn North

Table 2 Central Penn North – New Compressor Station & Modification to Existing Compressor Station				
Facility ID	Modifications	Township	County	State
Existing Compressor Station 605*	Uprate the two (2) existing electric motor-driven (EMDs) from 15,000 HP to 21,000 HP each	Clinton	Wyoming	PA
New Grassroots Compressor Station 607	Install two (2) Titan 130 units (23,465 nominal HP at ISO conditions each, 46,930 HP total)	TBD	Luzerne	PA
* no earth disturbance necessary				

Transco is currently assessing sites for Grassroots Compressor Station 607. Sites of interest are located in Luzerne County and consist of two options: 607 Hayfield and 607 Maransky. Modifications at Existing Compressor Station 605 will include additional horsepower/compression but will not involve earth disturbance. Mapping depicting the locations of the property boundaries of the proposed Compressor Station 607 options as well as the location of Compressor Station 605 is provided in Attachment B.

Central Penn South

Table 3 Central Penn South – New Compressor Station & Modification to Existing Compressor Station				
Facility ID	Facility Type	Township	County	State
Existing Compressor Station 610	Install one (1) Titan 250 Unit (31,871 nominal HP at ISO conditions), Re-wheel and uprate two (2) existing EMD units from 20,000 to 21,000 HP, and add unit cooling	Orange	Columbia	PA
New Grassroots Compressor Station 620	Install one (1) Titan 250 Unit (31,871 nominal HP at ISO conditions)	TBD	Schuylkill	PA

Transco is currently assessing sites for Grassroots Compressor Station 620. Sites of interest are located in Schuylkill County and consist of two options: 620-1 and 620-5-1. Modification to Existing Compressor Station 610 will include the installation of additional horsepower/compression and other related modifications which may require additional land disturbance and workspace outside of the existing compressor station footprint. Mapping depicting the locations of the property boundaries of the proposed Compressor Station 620 options, and the approximate location of Existing Compressor Station 610 is provided in Attachment B.

Field surveys have initiated but have not yet been completed for the Project. Temporary and permanent workspaces (e.g. disturbance areas) have not been fully defined at this time. During and following field surveys, the proposed pipeline route and other disturbance areas are subject to refinements in order to avoid various natural resource and land use features along with engineering design requirements. Because the Project design has not been finalized, estimated areas of impact have not been provided on the PNDI Manual Project Submission Form provided in Attachment A.

This correspondence is intended to initiate consultation with the United States Fish and Wildlife Service regarding the presence of Threatened, Endangered, and special concern species occurring along or in the vicinity of the Project. An online PNDI review for the Project was completed on October 31, 2018, and is provided in Attachment C.

Should the Project, as presented, indicate the need for additional species-specific field studies or indicate other Project considerations, please provide a response outlining those requirements.

If you have any questions regarding this correspondence and information request, or require additional Project information, please do not hesitate to call me at (713) 215-2781 or contact me via e-mail at Devyn.Richardson@Williams.com. Alternatively, you can contact Kevin Clark, Project Manager at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

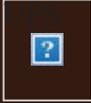


Devyn Richardson
Sr. Environmental Project Manager

Attachments: Attachment A: PNDI Manual Project Submission Form
 Attachment B: Project Location Maps
 Attachment C: PNDI Search ID: PNDI-670193

cc: Josh Henry, Transco
 Kevin Clark, WHM Consulting, Inc.

From: [UPS Quantum View](#)
To: [Kevin Clark](#)
Subject: UPS Delivery Notification, Tracking Number 1Z8797VV0399339863
Date: Thursday, November 01, 2018 10:53:19 AM



Your package has been delivered.

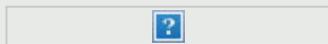
Delivery Date: Thursday, 11/01/2018

Delivery Time: 10:49 AM

At the request of WHM CONSULTING, INC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z8797VV0399339863 Pamela Shellenberger US Fish and Wildlife Service 110 RADNOR RD STATE COLLEGE, PA 16801 US
Ship To:	
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	RECEIVER THEES
Reference Number 1:	Williams 200



[Download the UPS mobile app](#)

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*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT H
CHAPTER 105 IMPACT PLANS**



Transcontinental Gas Pipe Line Company, LLC

LEIDY SOUTH PROJECT - COMPRESSOR STATION 607

CHAPTER 105 WATER OBSTRUCTION AND ENCROACHMENT

PERMIT APPLICATION

LUZERNE COUNTY, PENNSYLVANIA

INSTALL TWO GAS TURBINE-DRIVEN COMPRESSOR UNITS (23,465 NOMINAL HP AT INTERNATIONAL ORGANIZATION FOR STANDARDIZATION [ISO] CONDITIONS EACH, 46,930 HP TOTAL) AND GAS COOLERS

September 2019
(Revised May 2020)



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

Crossing Name ¹	Resource Name ²	Resource Type ³	Cowardin Classification ⁴	Impact Type ⁶	Impact Area (ac) ⁷
CS607A-1	W2-T2-CS607A	Wetland	PEM	Temporary	0.19
CS607A-2	W2-T1-CS607A	Wetland	PEM	Temporary	0.12
CS607A-3	W2-T3-CS607A	Wetland	PEM	Temporary	0.01
CS607A-4	W3-T3-CS607A	Wetland	PEM	Temporary	0.01

TABLE NOTES:

- UNIQUE IDENTIFIER FOR THE SINGLE AND COMPLETE CROSSING
- UNIQUE NAME FOR IMPACTED RESOURCE
- TYPE OF IMPACTED RESOURCE (WETLAND).
- COWARDIN CLASSIFICATION OF IMPACTED WETLAND.
- IMPACT TYPE IS EITHER PERMANENT OR TEMPORARY.

TEMPORARY IMPACTS:

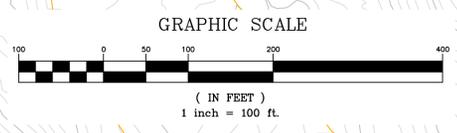
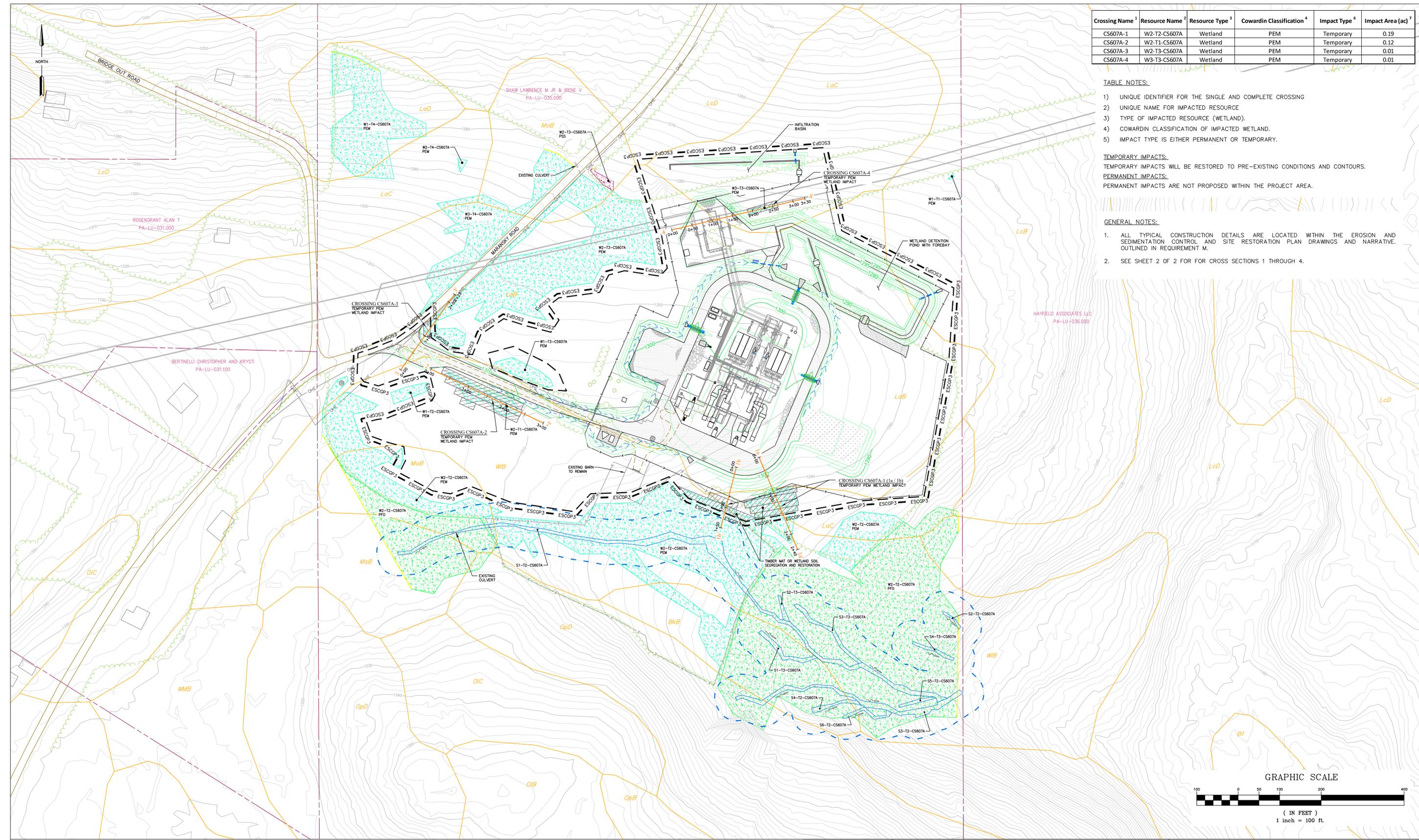
TEMPORARY IMPACTS WILL BE RESTORED TO PRE-EXISTING CONDITIONS AND CONTOURS.

PERMANENT IMPACTS:

PERMANENT IMPACTS ARE NOT PROPOSED WITHIN THE PROJECT AREA.

GENERAL NOTES:

- ALL TYPICAL CONSTRUCTION DETAILS ARE LOCATED WITHIN THE EROSION AND SEDIMENTATION CONTROL AND SITE RESTORATION PLAN DRAWINGS AND NARRATIVE OUTLINED IN REQUIREMENT M.
- SEE SHEET 2 OF 2 FOR FOR CROSS SECTIONS 1 THROUGH 4.



LEGEND

PROPOSED LIMITS OF DISTURBANCE	UTILITY LINE/POLE	EMERGENT WETLAND (PEM)
EXISTING ROADWAY (PAVED)	PROPOSED FENCE	SCRUB SHRUB WETLAND (PSS)
PARCEL BOUNDARY	TREELINE	FORESTED WETLAND (PFO)
EXISTING CONTOUR MAJOR (10' C.I.)	EXISTING LEIDY / TGPL PIPELINES	PROPOSED PEM WETLAND IMPACT
EXISTING CONTOUR MINOR (2' C.I.)	EXISTING CULVERT	OPEN-ENDED BOUNDARY
FINAL CONTOUR MAJOR (10' C.I.)	EXISTING STRUCTURE	STREAMS
FINAL CONTOUR MINOR (2' C.I.)	DIVERSION CHANNEL	STREAM CHANNEL
CROSS SECTION LOCATIONS (SEE SHEET 2 OF 2)	EXISTING FENCE	FLOODWAY

WETLANDS

EMERGENT WETLAND (PEM)
SCRUB SHRUB WETLAND (PSS)
FORESTED WETLAND (PFO)
PROPOSED PEM WETLAND IMPACT
OPEN-ENDED BOUNDARY
STREAMS
STREAM CHANNEL
FLOODWAY

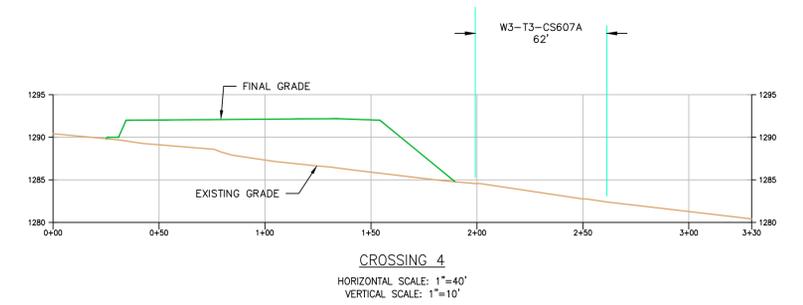
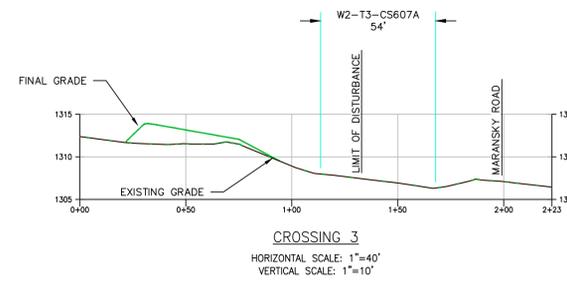
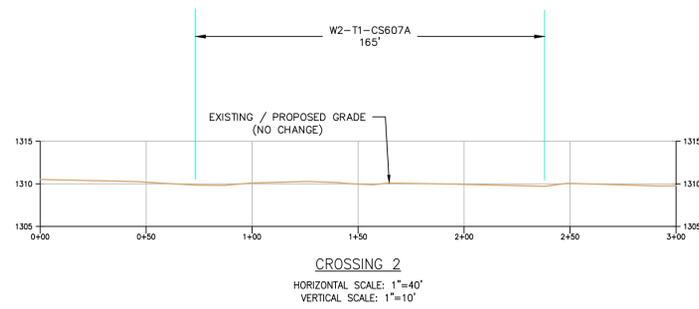
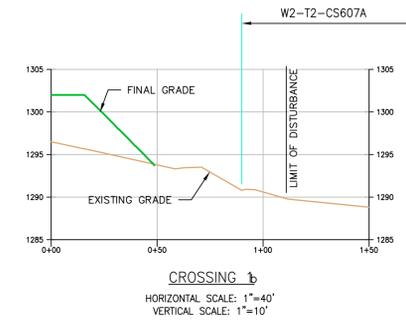
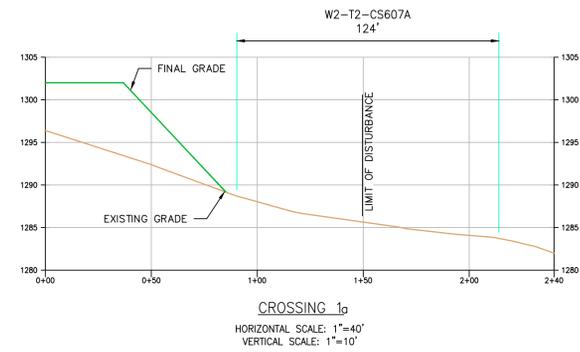
- EXISTING CONDITION NOTES/SOURCES**
- EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO BETWEEN OCTOBER 2018 AND JULY 2019.
 - PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO OR A COMBINATION OF DEED REFERENCE AND FIELD LOCATED EVIDENCE. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
 - THE FLOODWAY/FLOODPLAIN LINE AS SHOWN ON THE PLANS WAS DEVELOPED FROM AVAILABLE FEMA FLOODWAY MAPPING, FEMA FLOODPLAIN MAPPING, AND THE PA CHAPTER 105 DEFINITION.
 - PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
 - STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING FROM OCTOBER 2018 TO JUNE 2019.
 - DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD83, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.
 - OTHER EXISTING INFORMATION SHOWN IN PLANS, PROVIDED BY A COMBINATION OF TRANSCO AND HGA.

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	05/08/2020	BWH	UPDATED GRADING PLAN TO AVOID PERMANENT WETLAND IMPACTS		KMC	KMC

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
 WATER OBSTRUCTION AND ENCROACHMENT IMPACT MAPS
 COMPRESSOR STATION 607 CROSSINGS
 FAIRMONT TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY: BWH	DATE: 09/03/19	ISSUED FOR BID:	SCALE: 1" = 100'
CHECKED BY: KMC	DATE: 09/03/19	ISSUED FOR CONSTRUCTION:	REVISION: 1
APPROVED BY: KCC	DATE: 09/03/19		
WO: 121227	RID:	DRAWING NUMBER: 26-1000-70-28-D	SHEET 1 OF 2

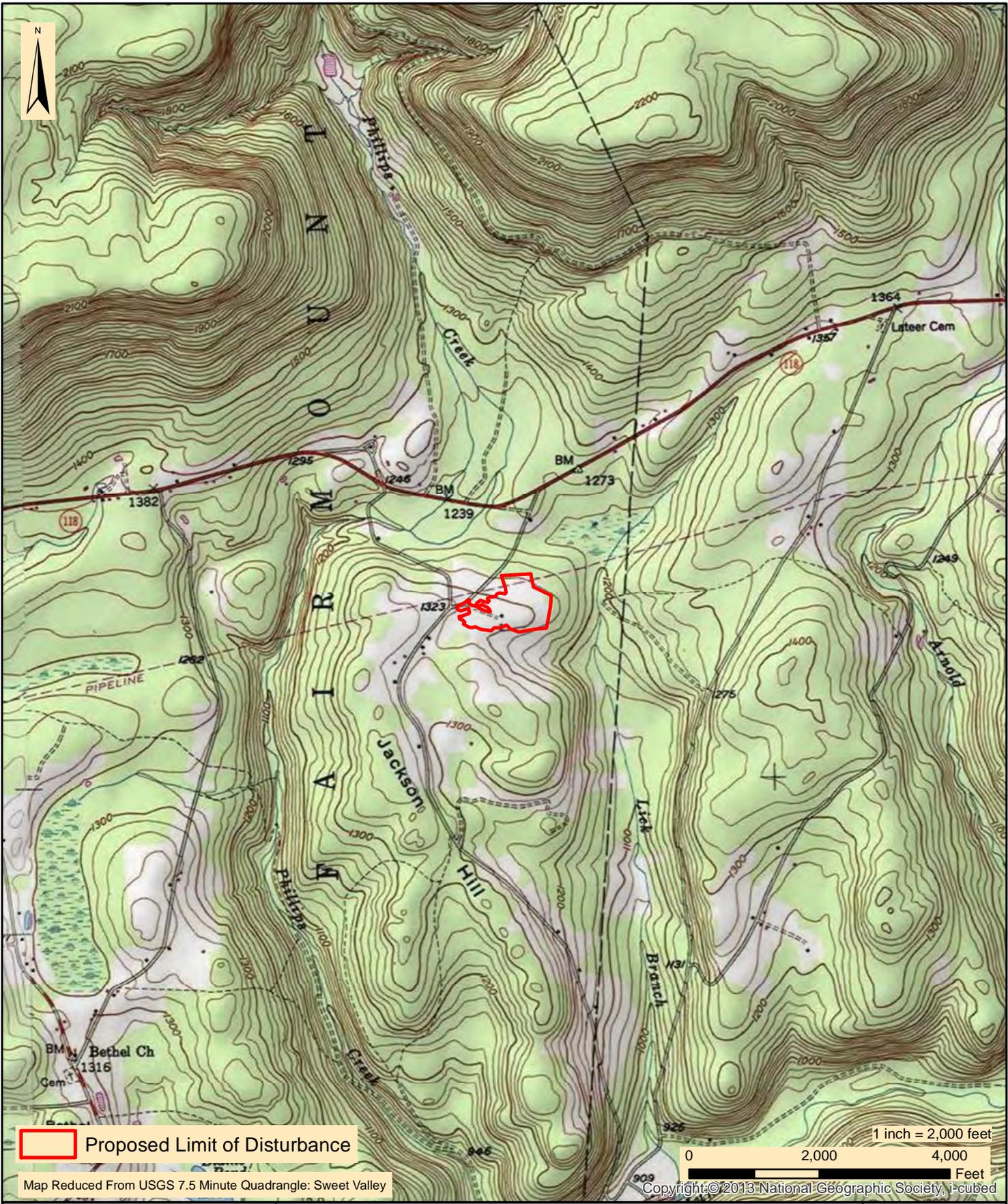


REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK	APP.
1	05/08/2020	BWH	UPDATED GRADING PLAN TO AVOID PERMANENT WETLAND IMPACTS		KMC	KMC

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC				
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607				
WATER OBSTRUCTION AND ENCROACHMENT IMPACT MAPS				
COMPRESSOR STATION 607 CROSS SECTIONS				
FAIRMONT TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA				
DRAWN BY: BWH	DATE: 09/03/19	ISSUED FOR BID:	SCALE: N/A	
CHECKED BY: KMC	DATE: 09/03/19	ISSUED FOR CONSTRUCTION:	REVISION:	
APPROVED BY: KCC	DATE: 09/03/19			
W.O. NUMBER: 1211227	RID:	DRAWING NUMBER: 26-1000-70-28-D		SHEET 2 OF 2

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT I PROJECT LOCATION MAP



Proposed Limit of Disturbance

WHM
 designs, permits, resolutions
consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
 NEW **PROPOSED** COMPRESSOR STATION 607
 PROJECT LOCATION MAP

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

Date: 8/21/2019
 WHM Drawing Number: WILLIAMS204A001
 Drawn By: FTN
 Figure Number: 5

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT J-1
PROJECT DESCRIPTION NARRATIVE**



Transcontinental Gas Pipe Line Company, LLC

**Requirement J-1
Project Description Narrative**

Leidy South Project – Compressor Station 607

**September 2019
(Revised May 2020)**

TABLE OF CONTENTS

1.0 GENERAL PROJECT DESCRIPTION
1.1 COMPRESSOR STATION 607

2.0 PROJECT PURPOSE AND NEED

3.0 WATER DEPENDENCY (REVISED MAY 2020)

4.0 PUBLIC HEALTH AND SAFETY

5.0 REFERENCES

1. General Project Description

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. is proposing the Leidy South Project – Compressor Station 607 (Compressor Station 607). Compressor Station 607 will take place in Fairmount Township, Luzerne County on the Sweet Valley, Pennsylvania USGS 7.5 Minute Topographic Quadrangles. Impacts to wetlands are anticipated, no streams or floodways will be impacted in Luzerne County as part of this project.

The Compressor Station is proposed as part of the overall Leidy South Project (Project). The Project is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Transco's Zone 6 includes the portion of the Transco system in Pennsylvania, New York, New Jersey, and Maryland. The overall Leidy South Project consists of the following components:

- 6.3 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hensel Replacement) and the related abandonment of 5.8 miles of existing 23.375-inch pipeline on Leidy Line A;
- 2.4 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hilltop Loop);
- 3.5 miles of 42-inch pipeline loop along Transco's Leidy Line in Lycoming County, Pennsylvania (Benton Loop);
- Existing Compressor Station 605 (Wyoming County, Pennsylvania);
 - Increase the total certificated horsepower of the two electric motor-driven units from 30,000 horsepower (HP) to 42,000 HP and modifications to existing coolers;
- New Compressor Station 607 (Luzerne County, Pennsylvania);
 - Install two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization [ISO] conditions each, 46,930 HP total) and gas coolers;

- Existing Compressor Station 610 (Columbia County, Pennsylvania);
 - Add one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions) and gas cooling;
 - Increase the total certificated horsepower of the two electric motor-driven units from 40,000 HP to 42,000 HP and re-wheel the existing compressors;
- New Compressor Station 620 (Schuylkill County, Pennsylvania);
 - Install one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions);
- Ancillary facilities, such as mainline valves (MLVs), communication facilities, cathodic protection and pig launchers and receivers in Pennsylvania.

Subject to the Federal Energy Regulatory Commission (FERC) approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

1.1 Compressor Station 607

Compressor Station 607 will consist of installing two Solar Titan 130 gas driven turbine compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. A new compressor station typically includes some of the following facilities:

- A compressor building to house each compressor;
- Associated aboveground and buried suction/discharge piping;
- A power building;
- A unit control building;
- A prefabricated office module;
- A climate-controlled storage module;
- Warehouse space;
- A telecommunications building;
- Aboveground storage tanks for hydrocarbon liquids and oily water;
- Unit scrubbers;

- Unit gas coolers;
- Unit blowdown stacks and two station blowdown stacks;
- One natural gas-fired emergency generator unit (size to be determined); and
- Two electric utility air compressors with one air dryer.

Compressor Station 607 will also include a parking area and access roads. The new compressor station will be surrounded by a perimeter fence to provide secure access to the site. The new compressor station will be capable of full-time operation and occupancy and will be designed for unattended operation via remote control from Transco’s Gas Control, located in Houston, Texas. Transco will install an emergency shutdown system at the new compressor stations per 49 Code of Federal Regulations (CFR) 192.

Compressor Station 607 was sited, to the extent practicable, to avoid and minimize impacts to surrounding resources. However, unavoidable temporary and permanent impacts to wetlands are necessary in order to construct and operate the new proposed Compressor Station 607. Temporarily impacted wetlands will be returned to pre-construction grade and contour upon completion of construction.

2. Project Purpose and Need

Transco proposes to construct and operate the Project facilities to provide an incremental 582,400 Dth/d of year-round firm transportation capacity from the Marcellus and Utica Shale production areas in northern and western Pennsylvania to Transco’s mainline at the River Road Regulator Station in Lancaster County, Pennsylvania. As a result of Transco’s negotiations with two anchor shippers and Transco’s Open Season for the Project that was held from October 9, 2018 through October 29, 2018, Transco has executed long-term, binding precedent agreements with three shippers for all of the 582,400 Dth/d of firm transportation capacity under the Project, as detailed in Table 2-1.

Table 2-1

Transco’s Customers and Transportation Capacity Subscribed to the Project

Shipper	Transportation Contract Quantity (Dth/d)
Cabot Oil & Gas Corporation	250,000
Seneca Resources Corporation	330,000
UGI Utilities, Incorporated D/B/A UGI North	2,400
Key: Dth/d = dekatherms per day	

The Project will provide Transco's customers and the markets they serve with greatly enhanced access to Marcellus and Utica Shale supplies providing users, such as power generators, access to clean, abundant, and lower priced natural gas as a better alternative to coal and oil. Access to the Marcellus and Utica Shale production areas is currently constrained on days where natural gas demand is the highest on the interstate pipeline systems by existing pipeline capacity. By increasing gas supply access at the River Road Regulator Station, the Project will support overall reliability and diversification of energy infrastructure along the Atlantic seaboard. The increased Project capacity further diversifies energy infrastructure by increasing the system's ability to meet growing northeast and southeast demand from the Marcellus and Utica in addition to gas historically produced in other areas of the United States. Moreover, the Project will benefit the public by promoting competitive markets and increasing the security of natural gas supplies to major delivery points serving the Atlantic seaboard.

A review of the Annual Energy Outlook 2018 (Energy Information Administration 2018) reference case indicates that natural gas consumption is expected to rise from 26 trillion cubic feet (Tcf) in 2018 to 34 Tcf in 2040 and will continue to grow to 35 Tcf in 2050. Therefore, Transco's proposal is consistent with expected market demand and the needs expressed by Transco's customers in the binding precedent agreements that have been executed for this additional capacity. As such, and as explained more fully in Transco's Certification Application, the Project is consistent with the Commission's Statement of Policy on the Certification of New Interstate Natural Gas Pipeline Facilities.

3. Water Dependency

Based on the Project purpose and need presented above, Compressor Station 607 was sited, to the extent practicable, to avoid and minimize impacts to surrounding resources. Wetland and watercourse delineations for the proposed Compressor Station 607 were conducted in 2018 and 2019 (Requirement L-3, Module 2, Appendix S2-1). During the delineation, 10 wetlands (with multiple Cowardian classification) and 9 streams were identified and delineated within the investigation area for the proposed Compressor Station 607. There are no Federal Emergency Management Agency (FEMA) Floodways located within the proposed Compressor Station 607 Project area.

Pursuant to 25 Pa. Code § 105.18(a)(2) PADEP determines on a case by case basis whether an infrastructure project is water dependent. The proposed Compressor Station 607

unavoidably temporarily impacts wetlands, but avoids impacts to streams and floodways; therefore, PADEP would be justified in determining pursuant to its regulations that the Project is water dependent. In total, the project will temporality impact 4 wetlands totaling 0.33 acres. Permanent wetland impact were avoided. Temporary wetland impacts will be returned to pre-construction grade and contour upon completion of construction. Wetland impacts associated with the Project are provided in the PA DEP Aquatic Resource Impact Table provided in Requirement J-2 of this application, and are also depicted on Chapter 105 Impact Plans provided in Requirement H.

4. Public Health, Safety, and the Environment

To minimize incidents, interstate natural gas pipeline facilities are designed, constructed, operated, and maintained in accordance with the U.S. Department of Transportation's (USDOT's) Pipeline and Hazardous Materials Safety Administration (PHMSA) Standard 49, Code of Federal Regulations (CFR) Part 192 (49 CFR Part 192). These federal safety standards, together with pipeline-integrity management programs and recent advances in pipeline manufacture, construction, and inspection techniques, minimize the potential for pipeline failure. These measures include improved public awareness initiatives, such as the "811" call system, "Call Before You Dig," and other One Call programs intended to reduce third-party damage to underground utilities, including buried high-pressure natural gas pipelines.

Transco will follow standard operating procedures and regulations during installation of the Project. Safety is a common concern with respect to natural gas pipeline projects and associated compressor facilities. While the Commission has oversight in ensuring that aboveground facilities are safely constructed and installed, once the natural gas is flowing in the new facilities, the USDOT assumes oversight responsibility during the operational life of the pipeline and supporting appurtenances. The USDOT is also responsible for setting the federal safety standards for natural gas.

Transco will comply with, and in most cases exceed, the requirements of the USDOT, the Occupational Safety and Health Administration (OSHA), and other applicable regulations, standards, and guidelines for safety. This will include compliance with applicable design standards and codes, construction provisions as mandated, and operation procedures and standards, such as the Pennsylvania, One Call system.

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC
Requirement J-1 – Project Description Narrative*

The Compressor Station 607 has been designed to minimize environmental impacts to the greatest extent practicable. Due to the location and nature of the Project, however, unavoidable temporary impacts to wetlands are proposed. A summary table outlining the wetland impacts associated with Compressor Station 607 are provided in the PA DEP Aquatic Resource Impact Table provided in Requirement J-2 of this application, and are also depicted on Chapter 105 Impact Plans provided in Requirement H.

During construction, impacts to wetlands will be minimized to the extent practical by employing the wetland construction procedures specified in the Project's Environmental Construction Plan (ECP) and within the approved Erosion and Sediment Control plans. The Project's ECP is modeled after the Federal Regulatory Commission (FERC) guidance and meets industry standards.

5. References

Cowardin LM, Carter V, Golet FC, LaRoe ET. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish & Wildlife Service Pub. FWS/OBS-79/31, Washington, DC.

FERC Online eLibrary.

https://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20190731-5049

The Pennsylvania Code. Title 25 Environmental Protection, Chapter 105. Water Quality Standards. (PACODE) Available online at

<https://www.pacode.com/secure/data/025/chapter93/chap93toc.html>. Accessed June 2019

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT J-2
PA DEP AQUATIC RESOURCE IMPACT TABLE**

Applicant's Name / Client: Transcontinental Gas Pipe Line Company, LLC
 Aquatic Resource Impact Table
 For Pennsylvania Chapter 105 Water Obstruction and Encroachment Application / Registration
 Project/Site Name: Compressor Station 607

DEP USE ONLY			Project Information								PADEP / 105						
PADEP Permit Number	Single Complete Crossing No.	Crossing Number	Structure / Activity unique identifier	Aquatic Resource Type	Latitude dd nad 83	Longitude dd nad 83	Waters Name	PA Code Chapter 93 Designation	Work Proposed	DEP Impact Type	Watercourse Impact			Floodway Impact		Wetland Impact Dimension	
											Top of Bank to Top of Bank			Top of Bank Landward			
											temp / perm	Length and Width (in feet)		Square Feet	Length and Width (in feet)		Square Feet
			W2-T2-CS607A / CS607A-1	PEM	41.298120	-76.222066	Wetland	EV	Mat	Temporary	-	-	-	-	-	287 - 29	8,429.9
			W2-T1-607A / CS607A-2	PEM	41.298862	-76.224436	Wetland	EV	Mat	Temporary	-	-	-	-	-	196 - 26	5,190.1
			W2-T3-CS607A / CS607A-3	PEM	41.299316	-76.224922	Wetland	EV	Mat	Temporary	-	-	-	-	-	30 - 8	261.1
			W3-T3-CS607A / CS607A-4	PEM	41.300071	-76.221980	Wetland	Other	Mat	Temporary	-	-	-	-	-	90 - 4	436.9

Summary of Aquatic Resource Impacts	
Total Temporary Wetland Impacts (acres)	0.33

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT K
COLOR PHOTOGRAPHS AND LOCATION MAP**



ID: Photo 1

Date: 03/27/19

Taken by: JH

Comments:
The photo shows a view of wetland W1-T3-CS607A.



ID: Photo 2

Date: 03/27/19

Taken by: JH

Comments:
The photo shows a view of wetland W3-T3-CS607A.



ID: Photo 3

Date: 03/26/19

Taken by: DW

Comments:

The photo shows a view of wetland W2-T1-CS607A.



ID: Photo 4

Date: 03/26/19

Taken by: DW

Comments:

The photo shows a view of wetland W2-T3-CS607A.



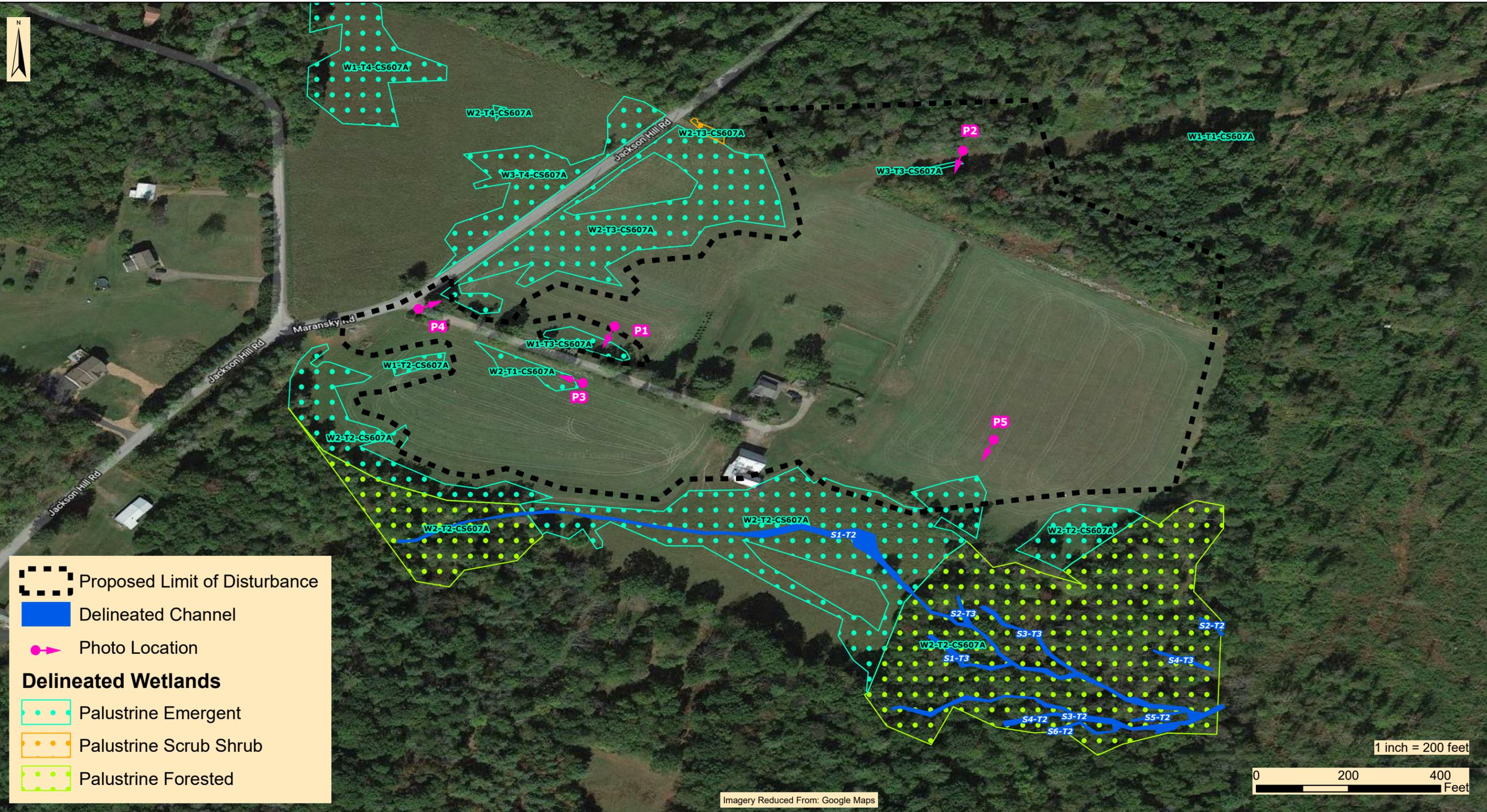
ID: Photo 4

Date: 03/26/19

Taken by: DW

Comments:

The photo shows a view of wetland W2-T2-CS607A.



Proposed Limit of Disturbance
 Delineated Channel
 Photo Location
Delineated Wetlands
 Palustrine Emergent
 Palustrine Scrub Shrub
 Palustrine Forested



Imagery Reduced From: Google Maps

WHM
 designs, permits, resolutions | consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
COMPRESSOR STATION 607
IMPACT LOCATION MAP

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

Date:	08/30/19
WHM DRAWING NUMBER:	WILLIAMS204A001
Drawn By:	PJF
Figure Number:	1



Transcontinental Gas Pipe Line Company, LLC

**LEIDY SOUTH PROJECT
COMPRESSOR STATION 607**

REQUIREMENT L – ENVIRONMENTAL ASSESSMENT

SEPTEMBER 2019
(REVISED AUGUST 2020)

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Module S2- Resource Identification and Characterization *(Revised May 2020)*

Module S3- Identification and Description of Potential Project Impacts *(Revised August 2020)*

Module S4- Mitigation Plan *(Revised August 2020)*

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT L-1
CHAPTER 105 ENVIRONMENTAL ASSESSMENT FORM



CHAPTER 105 ENVIRONMENTAL ASSESSMENT FORM

Item
Included Location

Note: The Department may waive a specific information requirement in writing, at the request of the Applicant, during the pre-application review process if the Department determines the information is not necessary to complete the review.			
Module S1: Project Summary			
<i>This module is intended to organize information in order to present an overall summary of the project scope, certain key information requirements and when applicable, a comprehensive view of the overall project and related projects.</i>			
A. Provide an overall project description and If the answer to the question below is YES , address CEA requirements; otherwise proceed to S1.B Comprehensive Environmental Assessment (CEA) when applicable. Answer the following question:	<input checked="" type="checkbox"/>		S1.A
Does the "overall" project require more than one Ch. 105 permit in more than one county or will the project be completed in more than one phase?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		S1.A.1(iii)
B. Provide information related to the project purpose, need, water dependency and summarize the amount and type of resources present and the temporary and permanent impacts proposed to those resources.	<input checked="" type="checkbox"/>		S1.B
Module S2: Resource Identification and Characterization			
<i>This module is intended to organize information related to the identification of the resources present on the project site and to characterize those resources that may be affected by the proposed project.</i>			
A. Provide the standard resource identification information, location map, wetland determination or delineation reports; watercourse reports; identification and qualifications of preparers; location map, and answer the related questions.	<input checked="" type="checkbox"/>		S.2 & Appendix S2-1
Is the site located within or adjacent to any of the following; or within 100 feet of items vii or viii?			
i. National, state or local park, forest or recreation area	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
ii. National natural landmark	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
iii. National wildlife refuge, or Federal, state, local or private wildlife or plant sanctuaries	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
iv. State Game Lands	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
v. Areas identified as prime farmland	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
vi. Source for a public water supply	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
vii. A National Wild or Scenic River or the Commonwealth's Scenic Rivers System	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
viii. Designated Federal wilderness area	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
B. Identify all aquatic resources present on the project site and provide an identifier, the resource type; size of the resource(s); fishery designations, Ch. 93 uses and special protection status; and Exceptional Value (EV) wetland analysis.	<input checked="" type="checkbox"/>		S2 & Appendix S2-1
C. Provide the following information related to habitat for Federal threatened and endangered (T&E) plant and animal species or State T&E species or species of special concern - copies of search forms or search receipts; identification of avoidance and minimization efforts taken to resolve identified conflicts.	<input checked="" type="checkbox"/>		S2.C.2
Did the PNDI search or agency coordination identify any potential conflicts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
If the above is answered YES ; answer the following two questions related to PNDI Coordination:			
a. Is the applicant utilizing a sequential review of the PNDI coordination?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
b. Is the applicant utilizing a concurrent review of the PNDI coordination?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		S2.C.2(i)
D. Characterize the aquatic resources: riverine, wetland and lacustrine present on the project site that are proposed to be directly or indirectly affected by the project. Including but not limited to the following, resource classification information, Level 2 rapid condition assessment results, discussion of resource functions, characterization of riparian properties and any other relevant information or studies conducted.	<input checked="" type="checkbox"/>		S2.D & Appendix S2-1
Module S3: Identification and Description of Potential Project Impacts			
<i>This module is intended to organize and present information concerning the potential impacts or effects of the proposed project in this application. Impacts related to the "over all" project that are proposed under related but separate application(s) should be addressed as part of the CEA Policy response under S1.A.</i>			
A. Provide a summary table of the proposed temporary and permanent direct and indirect impacts for each effected resource category (e.g. riverine, wetlands and lacustrine resources).	<input checked="" type="checkbox"/>		S3.A
B. If any questions from S2.A Standard Information Response questions were answered YES, discuss in detail any potential impacts to those resource(s).	<input checked="" type="checkbox"/>		S3.B
IMPORTANT NOTE: If either item vii or viii from S2.A is answered YES, the project is not eligible as a "Small Project Application" type. Complete all applicable sections of the EA form for the standard application type unless an item was otherwise waived by the Department in writing (see previous Note on waiving of information requirements).			

	Item	Included Location
C. Provide a table(s) of all proposed water obstruction(s), encroachment activities and dams (e.g. subfacility codes) and provide an identifier, the subfacility code and description, resource identifier from S2.B , latitude and longitude, the proposed temporary and permanent direct and indirect impacts and subfacility details.	<input checked="" type="checkbox"/>	Appendix S3-1
D. Provide a discussion of how the proposed subfacility(ies) individually and in combination directly and/or indirectly impact the identified resource(s) and the effects on the applicable resource functions: hydrologic, biogeochemical, habitat, recreation, any other environmental impacts and the effects on the property or riparian rights of owners upstream, downstream or adjacent to the project.	<input checked="" type="checkbox"/>	S3.D.2
E. Antidegradation Analysis - The applicant should demonstrate consistency with State antidegradation requirements as described in the Water Quality Antidegradation Implementation Guidance Policy Document Number 391-0300-002. Project application information provided below in S3.F, G and H may be cross-referenced.	<input checked="" type="checkbox"/>	S3.E
F. Alternatives Analysis - The scope and extent of this analysis should be commensurate with the size and scope of the proposed project impacts <i>in this</i> application, information provided in S4.A below, related to avoidance and minimization efforts, may be cross-referenced.	<input checked="" type="checkbox"/>	Requirement S JPA
G. Potential Secondary Impact Evaluation - Identify and describe environmental impacts on adjacent land and water resources associated with but not that direct result of the project.	<input checked="" type="checkbox"/>	S3.G
H. Identify and evaluate the potential cumulative environmental impacts of this project and other potential or existing projects like it, and the impacts that may result through numerous piecemeal changes to the wetland resource.	<input checked="" type="checkbox"/>	S3.H

Module S4: Mitigation Plan

*This module is intended to organize and present information concerning actions undertaken in accordance with the definition of **Mitigation** in Title 25 Pa. Code Chapter 105 - §105.1, 105.16, 105.18a(a)(3), 105.18a(b)(7), 105.20a, and 105.21 as related to the potential impacts or effects of the proposed project **in this** application.*

A. Identify and discuss any measures taken that resulted in avoiding or minimizing unavoidable resource impacts, provide detailed responses for individual proposed impact area(s) and the project as a whole.	<input checked="" type="checkbox"/>	S4.A & Requirement S JPA
B. Identify and discuss any repair, rehabilitation or restorative actions taken to rectify an impacted resource, provide detailed responses for individual proposed impact area(s) and the project as a whole. Identify and discuss any proposed preservation and maintenance operations that will be taken to reduce or eliminate an impact during the life of the project.	<input checked="" type="checkbox"/>	S4.B
C. Identify and discuss any actions undertaken to provide compensatory mitigation including the purchase of credits from an approved provider, a detailed discussion of proposed compensation actions and how they will offset the lost resource functions. Provide detailed plans including performance standards and success criteria.	<input type="checkbox"/>	S4.C & D
Answer the following question. If the answer to the question is YES , provide the information regarding the mitigation credit provider; otherwise provide a detailed mitigation plan. If the application proposes to utilize both mitigation bank credits and conduct permittee responsible mitigation; both the credit provider and mitigation plan information shall be submitted.	<input type="checkbox"/>	
Does the applicant propose to utilize an approved mitigation bank to provide all or a portion of the compensation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
D. When applicable, provide a plan to monitor the identified actions proposed in S4.B and/or S4.C compensatory mitigation area. Applicants should utilize the Department's Design Criteria and the USACE's RGL 08-03 -(http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl08_03.pdf) to develop monitoring plans for compensatory mitigation proposals. The plan should include performance standards/success criteria, duration and timeframes of monitoring, monitoring report template, and template remedial action or adaptive management plan.	<input checked="" type="checkbox"/>	S4.C & D & Appendix S4 - 3

Note: All or portions of this Module may apply to "Small Project" type applications under case specific circumstances and should be discussed during any pre-application meetings or prior to application submittal.

CERTIFICATION

I certify that the above statements, attachments including those labeled and identified as Enclosures, and all conclusions are true, correct, and based upon current environmental principles and science, to the best of my knowledge and belief.

	08/16/19	
Signature	Date	

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT L-2
MODULE S1- PROJECT SUMMARY**



Transcontinental Gas Pipe Line Company, LLC

**Requirement L-2, Environmental Assessment
Module S1 – Project Summary**

Leidy South Project – Compressor Station 607

September 2019
(Revised August 2020)

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Module S1- Project Summary

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S1.A.1(iii) List of Chapter 105 Applications associated with Overall Project

S1.A.1(iv) Summary of Overall Project Impacts (*Revised August 2020*)

S1.B Additional Information

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S1.B.2 Water Dependency (*Revised May 2020*)

S1.B.3 Aquatic Resource Summary Table

S1.B.4 Summary of Proposed Project Impacts (*Revised May 2020*)

References

Figure

1.1-1 – Leidy South Project Location Map

MODULE S1

PROJECT SUMMARY

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. is submitting an application to the Pennsylvania Department of Protection (PADEP) for a Section 401 Water Quality Certificate under the Federal Clean Water Act guideline for Project related impacts to Waters of the United States subject to jurisdiction under Section 404 of the Clean Water Act and subject to PA Code Title 25 Chapter 105. The following provides an overall summary of the Leidy South Project – Compressor Station 607 as defined in Module S1 of the Environmental Assessment Form.

S1.A Project Description

Transco is proposing the Leidy South Project (Project). The Project is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Transco's Zone 6 includes the portion of the Transco system in Pennsylvania, New York, New Jersey, and Maryland. The Project consists of the following components:

- 6.3 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hensel Replacement) and the related abandonment of 5.8 miles of existing 23.375-inch pipeline on Leidy Line A;
- 2.4 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hilltop Loop);
- 3.5 miles of 42-inch pipeline loop along Transco's Leidy Line in Lycoming County, Pennsylvania (Benton Loop);
- Existing Compressor Station 605 (Wyoming County, Pennsylvania);
 - Increase the total certificated horsepower of the two electric motor-driven units from 30,000 horsepower (HP) to 42,000 HP and modifications to existing coolers;
- New Compressor Station 607 (Luzerne County, Pennsylvania);

- Install two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization [ISO] conditions each, 46,930 HP total) and gas coolers;
- Existing Compressor Station 610 (Columbia County, Pennsylvania);
 - Add one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions) and gas cooling;
 - Increase the total certificated horsepower of the two electric motor-driven units from 40,000 HP to 42,000 HP and re-wheel the existing compressors;
- New Compressor Station 620 (Schuylkill County, Pennsylvania);
 - Install one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions);
- Ancillary facilities, such as mainline valves (MLVs), communication facilities, cathodic protection and pig launchers and receivers in Pennsylvania.

Subject to the Federal Energy Regulatory Commission (FERC) approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

S1.A.1 Project Counties and Phases

The Project will take place within Clinton, Columbia, Luzerne, Lycoming, Wyoming, and Schuylkill counties, Pennsylvania, as outlined in Figure 1.1-1 – Leidy South Project Location Map. Chapter 105/Section 404 Joint Permit Applications will be submitted for impacts to waters of the Commonwealth for the Hensel Replacement and Hilltop Loop within Clinton County, the Benton Loop within Lycoming County, and Compressor Station 607 within Luzerne County. The Project will not impact waters of the Commonwealth in Columbia, Wyoming and Schuylkill counties. The Project will not have any earth disturbance within Wyoming County. The Project will not be completed in Phases, as all Project components will be constructed to meet the target in-service date.

S1.A.1(i) Comprehensive Environmental Assessment

The proposed Project qualifies for the Comprehensive Environmental Assessment (CEA) due to the Project impacts being in multiple counties. As part of the CEA, Transco analyzed alternatives, impacts, mitigation and antidegradation for all structures and activities associated with the Project, including the cumulative impact of the Project and other existing and potential projects. The alternatives analysis for the Project can be found in Module 3, Appendix S3-4 Alternatives Analysis. The alternatives address energy source and systems analysis evaluated for the Project. Within the systems analysis various design options and routes were considered to determine the proposed Project design. Project impacts are discussed within Module S3, where impacts to resources are quantified, and impacts to threatened, endangered, or species of special concern are addressed. Proposed mitigation for the Project can be found within Module S4. Proposed mitigation measures described in this section include the avoidance and minimization measures proposed as part of the Project, and plans for onsite and offsite mitigation, as it relates to wetlands and riparian buffers. Antidegradation measures for the Project are found in Module 3, Section S3.E.

S1.A.1(ii) Nature, Extent, and Timeline of Project

Subject to FERC approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

Transco will use conventional techniques for facility construction to ensure safe, stable, and reliable transmission facilities, consistent with the Federal Energy Regulatory Commission and USDOT specifications. Construction of the proposed facility will follow a set of operations as typically utilized in compressor station construction. Typically, facility construction will take place in the following order:

- Surveying and Staking
- Installation of Erosion and Sediment Controls
- Clearing and Grading
- Excavation
- Foundations
- Facility Fabrication and Construction
- Hydrostatic Testing

- Completion of Post-Construction Stormwater Management Devices
- Final Grading, Clean-up, and Restoration

S1.A.1(iii) List of Chapter 105 Applications associated with Overall Project

Transco will submit three Chapter 105 Joint Permit Applications for the Project. This application is for Compressor Station 607 which is located in Luzerne County. Additionally, one application will be submitted for the Hensel Replacement and Hilltop Loop, both of which will take place in Clinton County. The other application will be submitted for the Benton Loop which is located in Lycoming County.

S1.A.1(iv) Summary of Overall Project Impacts

As part of the Project, unavoidable wetland and watercourses impacts are anticipated to occur. Transco proposes to offset impacts through onsite restoration and offsite compensatory wetland mitigation. Mitigation is discussed in greater detail in Module 4, Appendix S4-1. In all instances, impacts have been minimized or avoided to the greatest extent practicable. A summary of the overall known impacts is provided in Table S1.A.1-1. There are no proposed water resources impacts in Columbia, Wyoming, and Schuylkill counties. There are no anticipated future impacts associated with the overall Project. Summary table S1.A1-1 below outlines impacts associated with the overall Project.

**Table S1.A.1-1
Aquatic Resource Impact Summary Table**

Project Component	Impact Type	Resource	Direct (Acres)	Indirect (Acres)
Benton Loop (Lycoming County)	Permanent	Wetland	-	1.52
		Watercourse	-	0.47
	Temporary	Wetland	0.49	1.12
		Watercourse	0.11	0.96
Hilltop Loop (Clinton County)	Permanent	Wetland	-	0.36
		Watercourse	-	1.05
	Temporary	Wetland	0.15	0.57
		Watercourse	0.06	1.00
Hensel Replacement	Permanent	Wetland	0.02	1.34

**Table S1.A.1-1
 Aquatic Resource Impact Summary Table**

Project Component	Impact Type	Resource	Direct (Acres)	Indirect (Acres)
(Clinton County)		Watercourse	-	1.72
	Temporary	Wetland	0.38	1.03
		Watercourse	0.19	0.42
Compressor Station 607 (Luzerne County)	Permanent	Wetland	-	-
		Watercourse	-	-
	Temporary	Wetland	0.33	0.33
		Watercourse	-	-
Notes:				
<ol style="list-style-type: none"> 1. Watercourse impacts include floodway impacts 2. Temporary direct impact areas are not additory to the impact areas listed as indirect, and such impacts are already accounted for. Temporary direct impact areas consist of timber mats/bridges. Where wetlands and floodways overlap, the direct impact was applied to the wetlands. 				

S1.B Additional Information

S1.B.1 Purpose and Need

Transco proposes to construct and operate the Project facilities to provide an incremental 582,400 Dth/d of year-round firm transportation capacity from the Marcellus and Utica Shale production areas in northern and western Pennsylvania to Transco’s mainline at the River Road Regulator Station in Lancaster County, Pennsylvania. As a result of Transco’s negotiations with two anchor shippers and Transco’s Open Season for the Project that was held from October 9, 2018 through October 29, 2018, Transco has executed long-term, binding precedent agreements with three shippers for all of the 582,400 Dth/d of firm transportation capacity under the Project, as detailed in Table S1.B.1-1.

**Table S1.B.1-1
 Transco’s Customers and Transportation Capacity Subscribed to the Project**

Shipper	Transportation Contract Quantity (Dth/d)
Cabot Oil & Gas Corporation	250,000
Seneca Resources Corporation	330,000

UGI Utilities, Incorporated D/B/A UGI North	2,400
Key: Dth/d = dekatherms per day	

The Project will provide Transco’s customers and the markets they serve with greatly enhanced access to Marcellus and Utica Shale supplies providing users, such as power generators, access to clean, abundant, and lower priced natural gas as a better alternative to coal and oil. Access to the Marcellus and Utica Shale production areas is currently constrained on days where natural gas demand is the highest on the interstate pipeline systems by existing pipeline capacity. By increasing gas supply access at the River Road Regulator Station, the Project will support overall reliability and diversification of energy infrastructure along the Atlantic seaboard. The increased Project capacity further diversifies energy infrastructure by increasing the system’s ability to meet growing northeast and southeast demand from the Marcellus and Utica in addition to gas historically produced in other areas of the United States. Moreover, the Project will benefit the public by promoting competitive markets and increasing the security of natural gas supplies to major delivery points serving the Atlantic seaboard.

A review of the Annual Energy Outlook 2018 (Energy Information Administration 2018) reference case indicates that natural gas consumption is expected to rise from 26 trillion cubic feet (Tcf) in 2018 to 34 Tcf in 2040 and will continue to grow to 35 Tcf in 2050. Therefore, Transco’s proposal is consistent with expected market demand and the needs expressed by Transco’s customers in the binding precedent agreements that have been executed for this additional capacity (see Table S1.B.1-1). As such, and as explained more fully in Transco’s Certification Application, the Project is consistent with the Commission’s Statement of Policy on the Certification of New Interstate Natural Gas Pipeline Facilities.

S1.B.2 Water Dependency

Based on the Project purpose and need presented above, Compressor Station 607 was sited, to the extent practicable, to avoid and minimize impacts to surrounding resources. Wetland and watercourse delineations for the proposed Compressor Station 607 were conducted in 2018 and 2019 (Requirement L-3, Module 2, Appendix S2-1). During the delineation, 10 wetlands (with multiple Cowardian classification) and 9 streams were identified and delineated within the investigation area for the proposed Compressor Station 607. There are no Federal Emergency Management Agency (FEMA) Floodways located within the proposed Compressor Station 607 Project area.

Pursuant to 25 Pa. Code § 105.18(a)(2) PADEP determines on a case by case basis whether an infrastructure project is water dependent. The proposed Compressor Station 607 unavoidably impacts wetlands, but avoids impacts to streams and floodways; therefore, PADEP would be justified in determining pursuant to its regulations that the Project is water dependent. In total, the project will temporality impact 4 wetlands totaling 0.33 acres. Permanent wetland impact have been avoided. Temporary wetland impacts will be returned to pre-construction grade and contour upon completion of construction. Wetland impacts associated with the Project are provided in the PA DEP Aquatic Resource Impact Table provided in Requirement J-2 of this application, and are also depicted on Chapter 105 Impact Plans provided in Requirement H.

S1.B.3 Aquatic Resource Summary Table

Wetland and Watercourse Delineations were conducted during Fall 2018 and Spring 2019. A summary of the resources located within the investigation area is provided in Table S1-B.3-1. Flow regimes are noted in the table below, which include ephemeral, intermittent, and perennial streams. Cowardin wetland classifications are also noted which include Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), Palustrine Forested (PFO), and Palustrine Open-water (POW).

Table S1.B.3-1 Aquatic Resource Summary Table				
Project Component	Resource Type	Cowardin Class / Stream Type	Number Delineated	Total Area Delineated (Acres)
Compressor Station 607	Wetland	PEM	10	4.22
		PSS	1	0.02
		PFO	2	1
		POW	0	0
	Watercourse	Intermittent	8	0.61
		Ephemeral	1	0.01
		Perennial	0	0

For detailed information on each specific resource identified as part of the Project, see Module 2, Appendix S2-1.

S1.B.4 Summary of Proposed Project Impacts

A summary of the proposed Compressor Station 607 temporary direct and indirect impacts is provided in Table S1.B.4-1. Further detail regarding the impacts at each specific resource can be found in Module S3.A.

Table S1.B.4-1 Aquatic Resource Impact Summary Table				
Project Component	Impact Type	Resource	Direct (Acres)	Indirect (Acres)
Compressor Station 607 (Luzerne County)	Permanent	Wetland	-	-
		Watercourse	-	-
	Temporary	Wetland	0.33	0.33
		Watercourse	-	-
Notes:				
<ol style="list-style-type: none"> 1. There are no watercourse impacts associated with Compressor Station 607. 2. Temporary direct impact areas are not additory to the impact areas listed as indirect, and such impacts are already accounted for. Temporary direct impact areas consist of timber mats/bridges. Where wetlands and floodways overlap, the direct impact was applied to the wetlands. 				

References

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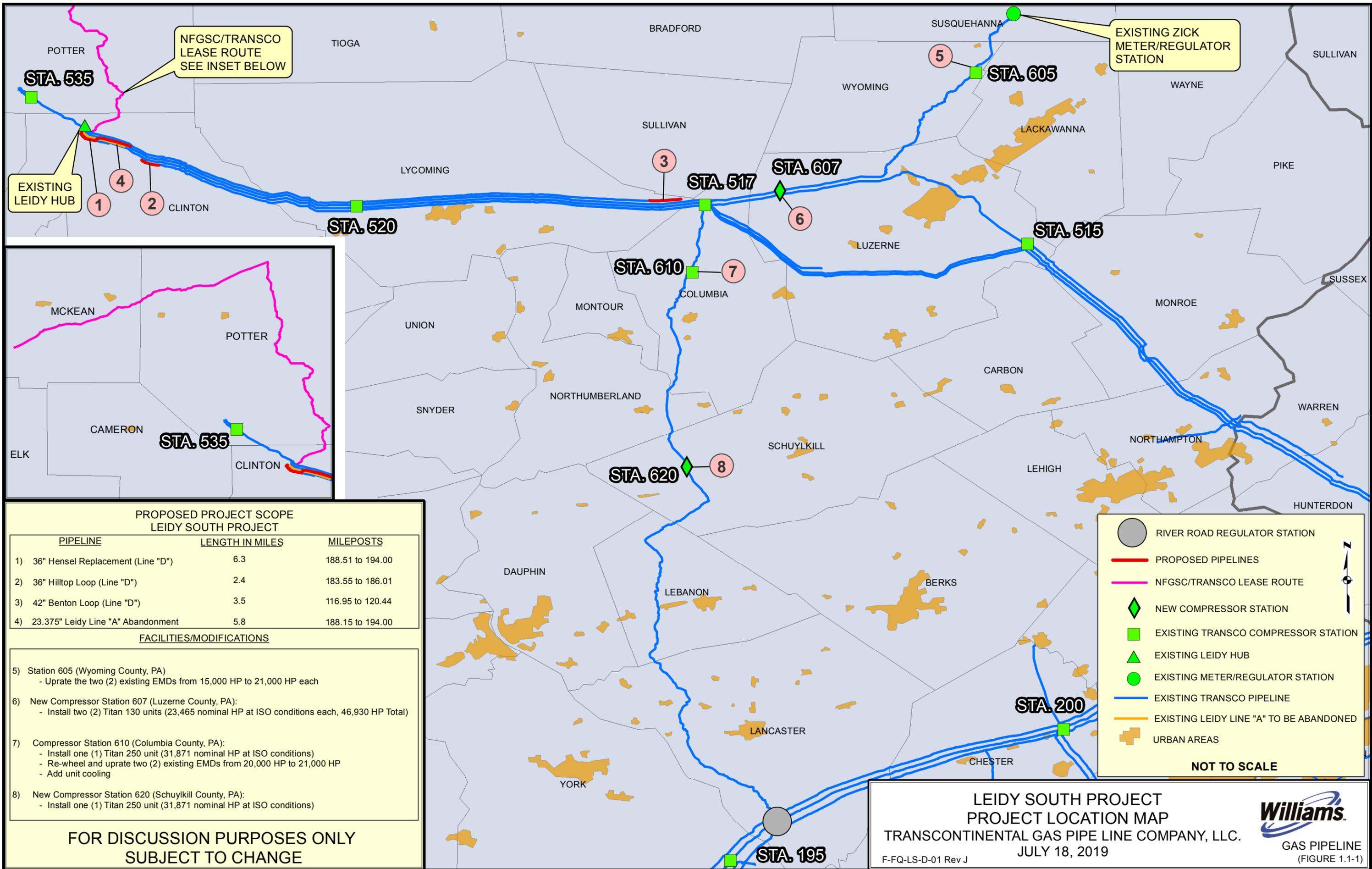
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<http://www.fws.gov/wetlands/>

FIGURE



NFGSC/TRANSCO LEASE ROUTE SEE INSET BELOW

EXISTING ZICK METER/REGULATOR STATION

EXISTING LEIDY HUB

1 2 3 4

STA. 535

STA. 520

STA. 610

STA. 517

STA. 607

STA. 605

STA. 515

STA. 620

STA. 200

STA. 195

**PROPOSED PROJECT SCOPE
LEIDY SOUTH PROJECT**

PIPELINE	LENGTH IN MILES	MILEPOSTS
1) 36" Hensel Replacement (Line "D")	6.3	188.51 to 194.00
2) 36" Hilltop Loop (Line "D")	2.4	183.55 to 186.01
3) 42" Benton Loop (Line "D")	3.5	116.95 to 120.44
4) 23.375" Leidy Line "A" Abandonment	5.8	188.15 to 194.00

FACILITIES/MODIFICATIONS

- 5) Station 605 (Wyoming County, PA)
 - Uprate the two (2) existing EMDs from 15,000 HP to 21,000 HP each
- 6) New Compressor Station 607 (Luzerne County, PA):
 - Install two (2) Titan 130 units (23,465 nominal HP at ISO conditions each, 46,930 HP Total)
- 7) Compressor Station 610 (Columbia County, PA):
 - Install one (1) Titan 250 unit (31,871 nominal HP at ISO conditions)
 - Re-wheel and uprate two (2) existing EMDs from 20,000 HP to 21,000 HP
 - Add unit cooling
- 8) New Compressor Station 620 (Schuylkill County, PA):
 - Install one (1) Titan 250 unit (31,871 nominal HP at ISO conditions)

NOT TO SCALE

- RIVER ROAD REGULATOR STATION
- PROPOSED PIPELINES
- NFGSC/TRANSCO LEASE ROUTE
- NEW COMPRESSOR STATION
- EXISTING TRANSCO COMPRESSOR STATION
- EXISTING LEIDY HUB
- EXISTING METER/REGULATOR STATION
- EXISTING TRANSCO PIPELINE
- EXISTING LEIDY LINE "A" TO BE ABANDONED
- URBAN AREAS

FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE

**LEIDY SOUTH PROJECT
PROJECT LOCATION MAP**
 TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
 JULY 18, 2019

F-FQ-LS-D-01 Rev J

GAS PIPELINE
(FIGURE 1.1-1)

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT L-3
MODULE S2- RESOURCE
IDENTIFICATION AND CHARACTERIZATION**



Transcontinental Gas Pipe Line Company, LLC

**Requirement L-3, Environmental Assessment
Module S2 – Resource Identification and Characterization**

Leidy South Project – Compressor Station 607

September 2019
(Revised May 2020)

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**MODULE S2
RESOURCE IDENTIFICATION AND CHARACTERIZATION**

This module provides information related to resources present on the Compressor Station 607 Project site (Project) and provides a characterization of those resources that may be affected by the proposed Project.

S2.A Standard Resource Identification

S2.A.1 Aquatic Resource Identification and Qualifications

The contact information and a summary of qualifications of the professional biologists who have identified resources present on the Project site are included below in Table S2-A.1-1 with resumes being provided in Module 2, Appendix S2-1.

Table S2-A.1-1 Organization / Persons Performing Aquatic Resource Identification				
Organization Name	Mailing Address	Staff	Email Address	Work Performed
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	Kevin Clark	kevinc@whmgroup.com	Project Manager, Oversaw Resource Identification & Characterization and Permit Application
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	David Wood	davidw@whmgroup.com	Technical Lead for Wetland and Watercourse Delineation
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	Carissa Butler	carissab@whmgroup.com	Wetland and Watercourse Delineation Level 2 Rapid Assessment Protocol
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	James Haney	jimh@whmgroup.com	Wetland and Watercourse Delineation Level 2 Rapid Assessment Protocol
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	Paul Fisher	paulf@whmgroup.com	Wetland and Watercourse Delineation
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	Curtis George	curtisg@whmgroup.com	Wetland and Watercourse Delineation

Table S2-A.1-1 Organization / Persons Performing Aquatic Resource Identification				
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	Ryan Nelson	ryann@whmgroup.com	Wetland and Watercourse Delineation and Permit application assistance
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	Phil Dunning	phild@whmgroup.com	Wetland and Watercourse Delineation Assistance
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	Charly Bloom	charlyb@whmgroup.com	Assisted with Wetland and Watercourse Delineation Reporting and Permit Application
WHM Consulting, Inc.	2525 Green Tech Drive Suite B State College, PA 16803 (814)-689-1650	Jennifer Jones	jeni@whmgroup.com	Assisted with Wetland and Watercourse Delineation Reporting and Permit Application

S2.A.2 Wetland Delineation Report

A Wetland and Watercourse Delineation Report is provided in Appendix S2-1.

S2.A.3 Watercourse Report

A Wetland and Watercourse Delineation Report is provided in Appendix S2-1.

S2.A.4 Project Location Map

Wetland and Watercourse Delineation Maps are provided in Appendix S2-1. Project Location Maps that identify natural areas, wildlife sanctuaries, natural landmarks, political boundaries, publicly available data for public water supplies, historic landmarks, State Forests, State Parks, State Game Lands, and prime farmland are included in Appendix S2-2.

S2.A.5 Additional Resource Identification

The resources outlined in Table S2.A.5-1 were identified to determine if the Project area is located within or adjacent to any of these resources. A description of the resource impacts is provided in Module 3, Section S3.B.1.

Table S2.A.5-1 Additional Resource Identification	
Resource	Crossed by Project
i. National, State, or Local Park, Forest or Recreation Area	No
ii. National Natural Landmark	No
iii. National Wildlife Refuge, or Federal, State, Local, or Private Wildlife or Plant Sanctuary	No
iv. State Game Lands	No
v. Areas Identified as Prime Farmland	Yes
vi. Source for Public Water Supply	No
vii. National Wild or Scenic River or the Commonwealth's Scenic Rivers System	Not crossed or within 100 feet
viii. Designated Federal Wilderness Area.	Not crossed or within 100 feet

S2.B Aquatic Resources Identification

Aquatic resources were identified within and surrounding the Project area by WHM Consulting, Inc. during field investigations that were completed from October 2018 through June 2019 (See Appendix S2-1). Wetland and watercourse delineations for the Project were conducted in accordance with United States Army Corp of Engineers (USACE) requirements, including field visits with the Pennsylvania Department of Environmental Protection (DEP) and the USACE in May of 2019. FEMA floodplains and floodways and 50-foot floodways are depicted on site plans provided in Chapter 102 and 105 permits. Also, the size of the existing floodplain and floodways are provided in Appendix S2-1. The soil mapping units and names, along with their hydric soil status are included within the report within Appendix S2-1. Dimensions and sizes of the resources are identified in the report and associated summary tables, along with fishery designations (as defined by the Pennsylvania Fish and Boat Commission (PFBC)) and the existing and designated stream uses.

S2.C Habitat for Federal or State Threatened, Endangered and/or Species of Special Concern

This section discusses the presence of federally and state-listed rare plant and animal species potentially occurring within or near the Project area. Transco has consulted with the Pennsylvania Department of Conservation and Natural Resources (DCNR), PFBC, Pennsylvania Game Commission (PGC), and the United States Fish and Wildlife Service (USFWS). These agencies are charged with managing state or federally-listed rare, threatened, endangered, or special concern species to identify their potential occurrence within the Project area. The DCNR manages state-listed plant species. The PFBC manages state listed reptiles and amphibians. The PGC manages state listed mammals. The USFWS manages all federally listed species.

Some species occur both on the state and federal lists. In addition, Transco is consulting with these agencies to determine if mitigation measures will be required. Table S2.C-1 lists the federally and state-listed species potentially occurring within the Project area and provides a summary of surveys conducted to date.

Table S2-C-1 Federally and State-Listed Species Potentially Occurring Within the Compressor Station 607					
Species Group	Species Common Name	Scientific Name	Federal Status	State Status	Survey Status
Mammals	Indiana bat	<i>Myotis sodalis</i>	Threatened	Endangered	Not required, implementing seasonal tree clearing restrictions
	Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	Endangered	Not required, implementing seasonal tree clearing restrictions
Plant	Northeastern Bulrush	<i>Scirpus ancistrochaetus</i>	Endangered	Endangered (Proposed Threatened)	Completed
	White Twisted-stalk	<i>Streptopus amplexifolius</i>	Not listed	Threatened, (Proposed Endangered)	Completed
	Swamp Currant	<i>Ribes lacustre</i>	Not listed	Species of Special Concern (Proposed Endangered)	Completed
	Creeping Snowberry	<i>Gaultheria hispidula</i>	Not listed	Rare	Completed
Sources: Allison 2018; Podniesinski 2018; Braun 2019; Jahrsdoerfer 2019b.					
Based on federal and state resource agency feedback.					

S2.C.1 Pennsylvania Natural Diversity Inventory (PNDI) Receipt

PNDI receipts and related agency correspondence is provided in Appendix S2-3. Surveys requested by the various agencies have been completed and reports were submitted to each agency as required.

S2.C.2 PNDI Potential Conflicts, Minimization, and Avoidance Measures

Potential conflicts were identified during the Pennsylvania Natural Heritage Program PNDI Environmental Tool Review. Additional consultation with each jurisdictional agency participating in the PNDI program is provided below in the following sections.

S2.C.2(i) PNDI Coordination

Transco is utilizing a concurrent review of the PNDI coordination.

S2.C.2(ii) Resources with Potential Conflict

No resources with potential conflict were identified within the Compressor Station 607 Project.

S2.C.2(iii & iv) Potential Conflicts, Avoidance and Minimization Measures

United States Fish and Wildlife Service

Indiana Bat

As of 2010, Pennsylvania had 18 known hibernacula in 11 counties that were used by the State's overwintering population of approximately 1,000 Indiana bats (Butchkoski 2010). A bat hibernaculum (plural form: hibernacula) is a location where hibernating bats spend the winters. However, the most recent population estimate by the USFWS, based on bi-annual winter hibernacula surveys, reduced the overwintering population in Pennsylvania to approximately 23 individuals, accounting for less than 0.01 percent of the species range-wide total (USFWS 2018c). Of the 11 counties with a known hibernaculum, only Luzerne County contains a winter hibernaculum (Butchkoski 2010).

Nine known summer maternity colonies and additional mist-netting captures have documented the summer presence of Indiana bats in 11 Pennsylvania counties (Butchkoski 2010); the Project does not occur in any of these 11 counties.

Northern Long-eared Bat

Transco previously completed surveys for northern long-eared bats in 2014 through 2016 for its Atlantic Sunrise Project, which is located adjacent to the proposed Project. Based on review of that survey data within 0.25 mile of the Project, no known maternity roost trees are located within 0.25 mile of Compressor Station 607. As noted in the USFWS correspondence dated March 5, 2019, "On February 16, 2016, a special conservation rule (i.e., 4(d) rule) was adopted that tailors protections for the northern long-eared bat under the Endangered Species Act (81 FR

1900). Incidental take that occurs as a result of tree removal that is not within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet from a known, occupied maternity roost tree is not prohibited in accordance with the 4(d) rule” (Jahrsdoerfer 2019b).

A USFWS Verification Letter has been provided for the Leidy South Project which verifies that the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule Programmatic Biological Opinion satisfies and concludes responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat. Transco plans to complete all tree clearing outside of the active northern long-eared bat season to avoid impacts on any northern long-eared bats that may be present in the LOD. Specifically, tree clearing will be completed between November 15 and March 31. As such, Transco does not expect impacts to northern long-eared bats as a result of the Project.

Northeastern Bulrush

All Project components are within the range of the northeastern bulrush (*Scirpus ancistrochaetus*), which is federally listed as endangered (Jahrsdoerfer 2019b). Northeastern bulrush ranges from Quebec, Canada south into West Virginia. While this species occurs in only a few locations in most states across its range, there are more than 80 documented populations within Pennsylvania (WPC n.d.). The preferred habitat of the northeastern bulrush is along the fringes of seasonal ponds, shallow wet depressions, and wetlands. It fruits in July and persists through January (Podnieszinski 2018).

The USFWS requested additional information regarding the extent of proposed wetland disturbance to determine whether field surveys or additional consultation is necessary for this species. Transco submitted this information to USFWS on April 15, 2019. Transco received an updated response from USFWS on June 24, 2019. The USFWS recommended a 300-foot impact avoidance buffer around wetlands in order to avoid impacts to northeastern bulrush. If this buffer could not be adopted, USFWS requested a survey of all wetland habitat for this species. Transco was unable to incorporate the avoidance buffer into the Project design and conducted surveys in June and July of 2019 of all potentially suitable wetland habitat within and surrounding the proposed Project area.

Transco conducted surveys in June and July of 2019 of all potentially suitable wetland habitat within and surrounding the proposed Project area. The presence of Northeast Bulrush was not confirmed within the Compressor Station 607 Project area or survey corridor as outlined

the DCNR / USFWS Botanical Survey Report outlined in Requirement L-3, Module 2, Appendix S2-3. The October 1, 2019 letter from the USFWS concluded that implementation of the proposed project will not affect this species.

Pennsylvania Department of Conservation and Natural Resources

The DCNR identified several target plant species associated with Compressor Station 607 (Table S2.C.2(ii)-1). Target species include those that are state-listed or proposed for state listing as rare, threatened, or endangered. Although the DCNR did not indicate that any rare, threatened, or endangered plant species were documented on-site, plant surveys were requested to be conducted for target species in Project areas that met the conditions of each species' habitat (Podnieszinski 2018). Survey windows vary for each species based primarily on flowering times, or other times of year when the plant is most readily apparent. Table S2.C.2(ii)-1 describes suitable habitat and flowering windows for each of the seven state-listed plant species. The federally listed northeastern bulrush is described above under the USFWS section.

Table S2.C.2(ii) - 1 Habitat and Flowering Windows for State-Listed Plant Species Potentially Occurring Within the Project Area			
Common Name	Scientific Name	Habitat	Flowing / Fruiting Window
White Twisted-stalk	<i>Streptopus amplexifolius</i>	Documented in a moist shaded ravine; suitable habitat includes cool ravines	Flowers: May-June
Swamp Currant	<i>Ribes lacustre</i>	Documented in a moist shaded ravine; suitable habitat includes swamps and cold, wet woods	Flowers: May - June
Creeping Snowberry	<i>Gaultheria hispidula</i>	Documented in flat wet woods; suitable habitat includes hummocks and tree stumps in bogs and swamps	Flowers: June Fruits: September
Sources: Podnieszinski 2018; PNHP n.d.(b);			

Transco completed surveys for state-listed plant species identified within and surrounding the Project area for Compressor Station 607. No state-listed species were identified within the Limits of Disturbance or Survey Area. A DCNR / USFWS Botanical Survey Report and approval letter is included in Appendix S2-3.

Pennsylvania Fish and Boat Commission

The PFBC did not identify target amphibian or reptile species associated with Compressor Station 607 within Luzerne County.

Pennsylvania Game Commission

The PGC defers comments on potential impacts to the Northern Long-eared bats to the USFWS. No other potential impacts based on the currently proposed Project area were identified.

S2.D Aquatic Resource Impact Characterization

S2.D.1(i - iii) Riverine Resource

There are no riverine resources to be impacted by Compressor Station 607.

S2.D.1(iv - v) Riverine Resource Assessment and Adjacent Riparian Property

There are no riverine resources to be impacted by Compressor Station 607. Adjacent properties of Compressor Station 607 are generally rural and forested properties with some residential dwellings.

S2.D.2(i - v) Wetland Resource Assessment

Table S2.D.2-1 outlines the total wetland resources to be impacted by the Project. A summary of the hydrogeomorphic (HGM), Cowardin, and palustrine community classifications and the PA Wetland Condition Level 2 Rapid Assessment Protocol (L2RAP) score of wetlands to be impacted by the Project is provided. A detailed summary of results from the PA Wetland Conditional Level 2 Rapid Assessment is included within the Wetland and Watercourse Delineation Report in Appendix S2-1.

Table S2.D.2-1 Wetland Resource Classification							
Facility	Milepost or Access Road	Wetland ID	Chapter 105.17 Classification ¹	HGM Classification ²	Cowardin Classification ²	Palustrine Community Classification	PA Wetland L2Rap Score
Compressor Station 607							
	N/A	W2-T1	EV	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.68
	N/A	W2-T2	EV	Slope	PEM	Mixed Forb - Graminoid Wet Meadow	0.68
	N/A	W2-T3	EV	Slope	PEM	Mixed Forb - Graminoid Wet Meadow	0.68
	N/A	W3-T3	Other	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.79
1 – Wetlands classified as EV were located within the floodplain of the reach or tributaries of Wild Trout waters or EV streams; or are located along and existing private or public water supply							
2 – HGM Classification Key:							
3 – Palustrine Community Classification Key:							

S2.D.2(vi) Wetland Inherent Functions

This section provides information as it pertains to the condition of wetland resource types within the Project area and how that relates to their functions and values. Wetlands identified during the wetland delineation consisted of PEM, PSS and PFO wetlands.

Wetlands within the Project area provide breeding habitat, serve to support food chain production, and provide resting, rearing, and escape cover for terrestrial and aquatic species. PEM plant species provide food sources for several terrestrial and aquatic species. Vegetation within wetlands provides shade and limited resting opportunities for wildlife species such as small mammals, amphibians, and insects. Larger PEM wetlands with a greater degree of vegetative heterogeneity may provide additional resting habitat and escape cover for wildlife species.

Groundwater discharge occurs in several of the wetlands that are located within or near the Project area. Likewise, wetlands within the Project area may provide groundwater or surface water recharge, depending on soil permeability.

The onsite wetlands that are more densely vegetated aid in filtering water. Most of these wetlands have been previously disturbed during prior pipe installation or agricultural activities within the Project area. Because the site is well vegetated, sedimentation control and patterns function naturally within the Project area, and currently function well controlling sediments. The existing vegetation acts as a filter to some capacity, filtering and trapping pollutions such as sediment and excess nutrients.

S2.D.3 Lacustrine Resources

There are no lacustrine resources within the Project area. Therefore, the Project is not anticipated to result in impacts to these resources.

S2.D.4 Other Environmental Factors

No other special studies or surveys were required for the Project other than those specifically referenced in Section S2.C.

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APPENDIX S2-1
WETLAND AND WATERCOURSE DELINEATION
REPORT

Science Collaborating with Business
for Better Environmental Solutions



TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

LEIDY SOUTH PROJECT – COMPRESSOR STATION
607A

**WETLAND AND WATERCOURSE DELINEATION
REPORT**

LUZERNE COUNTY, PENNSYLVANIA

JULY 2019 (REVISED APRIL 2020)

Prepared by:



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State College, PA 16803
Phone: 814-689-1650 Fax: 814-689-1557



TRANSCONTINENTAL GAS PIPELINE COMPANY, LLC
LEIDY SOUTH PROJECT – COMPRESSOR STATION 607A
LUZERNE COUNTY, PENNSYLVANIA
WETLAND AND WATERCOURSE DELINEATION REPORT

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- 2.0 Desktop Analysis
- 3.0 Wetland and Water Resource Delineation Methodology
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- A Overall Project Location Map
- B Resumes
- C Compressor Station 607A Wetland and Watercourse Delineation Report

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT – COMPRESSOR STATION 607A

LUZERNE COUNTY, PENNSYLVANIA

WETLAND DELINEATION REPORT

1.0 INTRODUCTION

Transcontinental Gas Pipe Line Company, LLC (Transco) is proposing the Leidy South Project (Project) which is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation that will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6 (See Attachment A – Project Location Map). Transco's Zone 6 includes the portion of the Transco system in Pennsylvania, New York, New Jersey, and Maryland. The Project consists of the following components:

- 6.3 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hensel Replacement) and the related abandonment of 5.8 miles of existing 23.375-inch pipeline on Leidy Line A;
- 2.4 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hilltop Loop);
- 3.5 miles of 42-inch pipeline loop along Transco's Leidy Line in Lycoming County, Pennsylvania (Benton Loop);
- Existing Compressor Station 605 (Wyoming County, Pennsylvania);
 - Increase the total certificated horsepower of the two electric motor-driven units from 30,000 horsepower (HP) to 42,000 HP and modifications to existing coolers;
- New Compressor Station 607 (Luzerne County, Pennsylvania);
 - Install two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers;
- Existing Compressor Station 610 (Columbia County, Pennsylvania);
 - Add one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions) and gas cooling;
 - Increase the total certificated horsepower of the two electric motor-driven units from 40,000 HP to 42,000 HP and re-wheel the existing compressors;
- New Compressor Station 620 (Schuylkill County, Pennsylvania);
 - Install one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions);
- Ancillary facilities, such as mainline valves (MLVs), communication facilities, and pig launchers and receivers in Pennsylvania.

Subject to FERC approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

This report summarizes the results of the wetlands and watercourse delineations (delineations) completed for the Project in Luzerne County, Pennsylvania by WHM Consulting, Inc. (WHM). Appendix A to this report shows the overall Project location map showing each of the previously mentioned Project components.

Wetland delineations were completed on the Project between October of 2018 and June of 2019. Resumes of the staff present during the delineations can be found in Appendix B. In May of 2019, site visits to review the wetland boundaries at various locations was completed with the Pennsylvania Department of Environmental Protection (PADEP) and the United States Army Corps of Engineers (USACE) as part of the preliminary jurisdictional determination (pre-JD) associated with the Project.

This overall narrative summarizes the methodology for the desktop analysis and wetland and watercourse delineation completed from the Project. As appendices to this report, several Project component specific reports are included. In these reports, an introduction to each Project component is provided, as well as the results of the desktop analysis and field surveys. Mapping, photographs, and wetland, upland and watercourse data forms are also provided. The following is a list of the appendices by Project component:

Appendix C: Compressor Station 607A Wetland and Watercourse Delineation Report.

2.0 DESKTOP ANALYSIS

Prior to conducting field investigations, a review of natural resource data associated with the Project site was completed to help establish probable areas where wetlands and watercourses could be located before conducting the onsite field investigation. Specifically, the following information was reviewed:

- U.S. Geologic Survey (USGS) 7.5-minute topographical maps;
- Department of Conservation and Natural Resources (DCNR) PAMAP Program – Topographical Contours (2 ft Intervals);
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI);
- USGS National Hydrography Dataset (NHD);
- Natural Resources Conservation Service (NRCS) web soil survey; and,
- Current and historical aerial imagery.

3.0 WETLAND AND WATERCOURSE DELINEATION METHODOLOGY

WHM conducted investigations on the subject Project areas according to the procedures and technical guidelines outlined in the 1987 *USACE Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (April 2012, Version 2.0)* and *Northcentral and Northeast Region (January 2012, Version 2.0)* depending on location. The USACE protocol establishes a three-parameter

approach for identification and delineation of wetlands, which includes confirmation of the following:

I. Hydrophytic Vegetation: This condition exists when greater than 50% of the plant species contain obligate (OBL), facultative-wet (FACW), or facultative (FAC) indicator status.

II. Hydric Soils: Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil (Federal Register, July 13, 1994).

III. Wetland Hydrology: Wetland hydrology is recognized through evidence of inundation and/or saturation to the soil surface for at least 5% of the growing season during most years.

In undisturbed conditions, the three parameters must be confirmed to be present to characterize an area as a wetland. In highly disturbed or problematic wetland situations, USACE guidance details procedures to be used for evaluating these areas and determining which areas are most likely considered wetlands upon review by a USACE representative. Upon completing our investigations, areas exhibiting three of the USACE criteria presented above and which also have surface water connection to other waters of the United States are identified as resources that are likely to be regulated by the USACE as Jurisdictional Wetlands. Areas exhibiting three parameters but without surface water connection to other waters were identified as wetlands or waters, but they may or may not be regulated by the USACE. In many cases, wetland areas not regulated by the USACE are still likely to be regulated by the PADEP.

A Cowardin Classification (or multiple Cowardin Classifications) was assigned to each wetland based on the vegetation, sediment type, and hydrological regime. Wetlands were flagged with pink wetland delineation flagging and labeled according to the team number, unique wetland ID, survey point number, and Cowardin classification. Wetlands with multiple Cowardin classifications will be delineated as one wetland and include a delineation of the boundaries of each Cowardin type within the wetland complex. Wetland and upland data points were surveyed at each wetland with data being recorded.

In addition to wetlands, waters likely to be regulated as Waters of the United States, including ephemeral, intermittent and perennial waterways, were identified in the investigation areas. The term "Jurisdictional Waters of the United States" as used by Section 404 of the CWA and defined under 33 Code of Federal Register (CFR) Section 328.1, includes adjacent wetlands and tributaries to traditionally navigable waters (TNW) and other waters with a hydrological connection to a TNW. The Commonwealth of Pennsylvania defines a watercourse or stream as any channel or conveyance of surface water having a defined bed and banks, whether natural or artificial, with perennial or intermittent flow. The Commonwealth does not regulate ephemeral watercourses which carry water only during storm water runoff events; however, these features were delineated due to the potential USACE jurisdiction.

The waterway type (perennial, intermittent or ephemeral) is noted on the stream data form completed for each delineated water resource. Water resources were flagged with blue delineation flagging and labeled according to the team number, unique stream ID and survey point number. The ordinary high-water mark on each bank (OHWM) or centerline (for waterways under 5 feet in width) were surveyed. The OHWM is defined in Title 33 of the

Federal Code as “by observations of water fluctuation, physical characteristics, such as a clear natural line impressed on the bank, shelving, changes in the soil character, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. In streams under 5 feet in width, the proper channel width is included in the area tabulations based on the delineators field notes. In addition, mapping illustrates the appropriate offset of the centerline.

For delineations performed in the Commonwealth of Pennsylvania, wetlands and waters identified during the wetland delineation are deemed probable “Jurisdictional Waters of the United States” until otherwise reviewed and accepted by the USACE and/or PADEP. If upon agency review the wetland or watercourse is determined to be isolated by the reviewers (i.e. has no significant nexus to “Jurisdictional Waters of the United States”), the regulatory body for such waters then becomes the jurisdiction of the PADEP.

Our determinations are based on our collective “best professional judgment” exercised with the guidance of the USACE’s manual and supplements. However, the final determination of the Jurisdictional status of the resources identified lies entirely within the review of the reviewing regulatory agencies. In other words, we identify a technically defensible boundary that must either be accepted or adjusted by the reviewing regulatory agencies in situations where encroachments may occur. As wetland consultants / biologists, we do not have the authority to assign regulatory jurisdiction.

Wetlands and waterways were initially surveyed by WHM with a hand-held GeoXH 6000 GPS. WHM then provided the GPS data and sketch mapping to Transco surveyors. Transco then re-surveyed the boundaries with a Trimble GNSS R10 Base and Rover and a Nikon D003451 Total Station. The data was then provided back to WHM for final review and incorporation into overall project mapping and the wetland delineation report.

4.0 FUNCTIONAL ASSESSMENT METHODOLOGY

A Functional Assessment was conducted in accordance with the procedures and technical guidelines outlined in the PADEP Level 2 Rapid Assessment Protocols. A desktop analysis was conducted to determine assessment areas (AA) and zones of influence (ZOI) prior to performing the Functional Assessment within the field. Data was collected during the wetland delineation using the field data sheets provided in the protocols. The data sheets were also used to determine the overall condition index score. In general, the closer the score is to 1, the better the condition of the resource being assessed. The results of the functional assessment will be included for the PADEP permitting.

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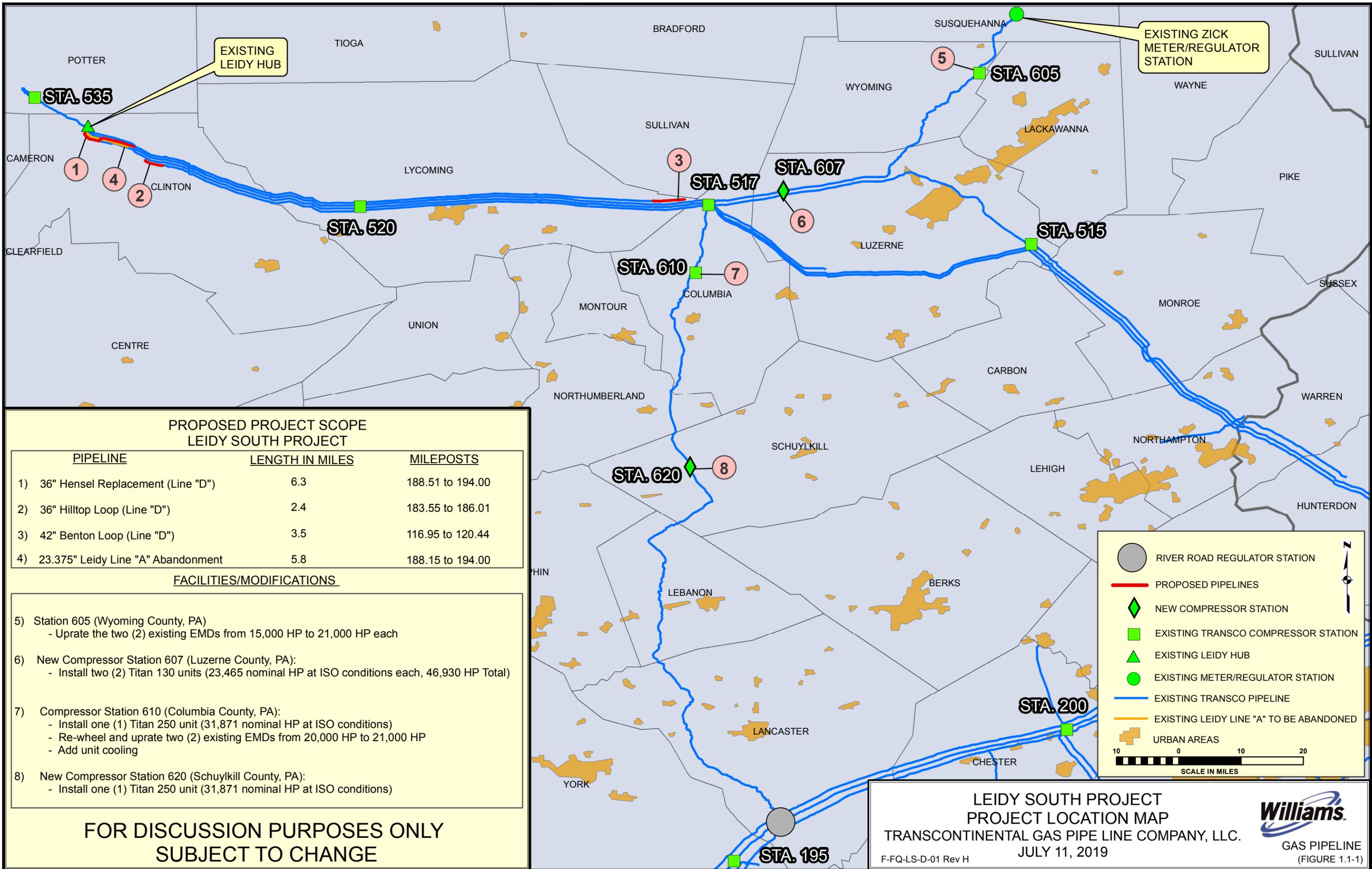
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- United States Fish and Wildlife Service. National Wetland Inventory Map, 7.5 Minute Series, Pennsylvania.

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APPENDIX A

OVERALL PROJECT LOCATION MAP



**PROPOSED PROJECT SCOPE
LEIDY SOUTH PROJECT**

PIPELINE	LENGTH IN MILES	MILEPOSTS
1) 36" Hensel Replacement (Line "D")	6.3	188.51 to 194.00
2) 36" Hilltop Loop (Line "D")	2.4	183.55 to 186.01
3) 42" Benton Loop (Line "D")	3.5	116.95 to 120.44
4) 23.375" Leidy Line "A" Abandonment	5.8	188.15 to 194.00

FACILITIES/MODIFICATIONS

- 5) Station 605 (Wyoming County, PA)
- Uprate the two (2) existing EMDs from 15,000 HP to 21,000 HP each
- 6) New Compressor Station 607 (Luzerne County, PA):
- Install two (2) Titan 130 units (23,465 nominal HP at ISO conditions each, 46,930 HP Total)
- 7) Compressor Station 610 (Columbia County, PA):
- Install one (1) Titan 250 unit (31,871 nominal HP at ISO conditions)
- Re-wheel and uprate two (2) existing EMDs from 20,000 HP to 21,000 HP
- Add unit cooling
- 8) New Compressor Station 620 (Schuylkill County, PA):
- Install one (1) Titan 250 unit (31,871 nominal HP at ISO conditions)

**FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE**

RIVER ROAD REGULATOR STATION
 PROPOSED PIPELINES
 NEW COMPRESSOR STATION
 EXISTING TRANSCO COMPRESSOR STATION
 EXISTING LEIDY HUB
 EXISTING METER/REGULATOR STATION
 EXISTING TRANSCO PIPELINE
 EXISTING LEIDY LINE "A" TO BE ABANDONED
 URBAN AREAS

10
0
10
20

 SCALE IN MILES

**LEIDY SOUTH PROJECT
PROJECT LOCATION MAP**
 TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
 JULY 11, 2019

GAS PIPELINE
 (FIGURE 1.1-1)

F-FQ-LS-D-01 Rev H

APPENDIX B

RESUMES

COMPANY TITLE

Environmental Specialist

EDUCATION

- *B.A., Environmental Studies, The Pennsylvania State University, 2010: Minor in Biology*

HEALTH & SAFETY

CERTIFICATIONS & TRAINING

- *ISN- 02053363*
- *PEC-100794105*
- *Safeland – June 2017*
- *Southwest Energy Training Assurance Program (TAP) – 2015 Core / Supplement – Oct. 2016*
- *Shell Contractor HSE Handbook Sept. 2016*
- *Adult First Aid/CPR– American Heart Association, Pennsylvania – Feb 2016*
- *Energy Transfer Contractor Safety – Feb 2016*
- *NCCER Performance Verifications Oct 2013*
- *AOCFG- Abnormal Operating Conditions- Field NCCER Sept. 2013*
- *Custom Pipeline Inspector NCCER Sept. 2013*
- *OSHA 40 Hour HAZWOPER Training; AllProbe Environmental*
- *Williams Contractor Safety; May 2012*

PROFESSIONAL TRAINING

- *PADEP Technical Workshops - Prepare for The New Aquatic Resource Condition Assessments (Cb. 105) – June 2017*
- *The Wetland Training Institute – Planning Hydrology, Vegetation, and Soils for Constructed Wetlands – July 2016*
- *Swamp School Wetland Wildflowers – June 2016*
- *Swamp School Field Identification of Wetland Sedges, Grasses and Rushes–June 2016*
- *PA Botany Steering Committee - A Consulting Botanist's Toolkit Workshop - Dec. 2015*
- *PAPSS Regional Supplement Hydric Soil Indicators & Wetland Delineation Forms July 2015*
- *PA Botany Steering Committee - A Consulting Botanist's Toolkit Workshop - Dec. 2015*
- *The PNPS (Pennsylvania Native Plant Society)– Identification of Grasses, Sedges, and Rushes*
- *SW'S Mid-Atlantic Chapter Wetland Mitigation, Restoration and Ecology State College, PA- April 4-5, 2014*
- *Pennsylvania Natural Heritage Program – PNDI Updates Presentation Harrisburg, Pa - Dec. 2013*
- *PA One Call System, Inc. Locater Program – State College, Pa November 2013*
- *FERC “Environmental Review and Compliance for Natural Gas” San Antonio, Texas Sept. 2013*
- *PA DEP ESCGP-2 Training July 10, 2013 State College, PA July 2015*
- *PA SFI® Training; Prof. Timber Harvesting Ess., Wildlife - Young Forest Initiative, Game of Logging - Level 1; May 2012*
- *Marcellus Workshop "An Update on PHMSA Pipeline Regulations & Act 127" Feb. 2012*
- *P.A.S.P.G.P-4 Workshop; Army Corps of Engineers, Baltimore District, October 2011*
- *Regional Supplement to the USACE Delineation Manual, State College, PA – M.N. Gilbert Environmental April 2011*

David Wood, PWS

Mr. Wood has more than has 7 years of professional work experience in natural resources management, wetland sciences, soil science, field biology, and plant sciences. Mr. Wood is a Professional Wetland Scientist (PWS) certified by the Society of Wetland Scientists (SWS). He has coordinated and/or contributed significantly to a wide variety of environmental projects throughout the North Atlantic Region. He has worked in both the public and private sectors for a diverse clientele that include government agencies, non-profit entities, corporations, and individuals.

CERTIFICATIONS & QUALIFICATIONS

- Professional Wetland Scientist number 2903
- 2018 Wild Plant Management Permit #18-658
- Ohio Rapid Assessment Method (ORAM) Certification - May 2014
- NCCER Craft Instructor Performance Evaluator Certification - Nov. 2013
- 38-Hour training on the “Army Corps of Engineers Wetland Delineation / Waters of the United States Training” - March 2013

PROFESSIONAL EXPERIENCE

ENVIRONMENTAL SURVEYS

- Performed Pennsylvania rare, threatened and endangered plant surveys and reporting.
- Assisted on several USFWS endangered plant surveys for *Scirpus ancistrochaetus* and *Isotria medeoloides* with several surveys resulting in the identification of *S. ancistrochaetus*;
- Field assistant on multiple Timber Rattlesnake Phase I and II surveys and Allegheny Wood Rat surveys;
- Performed macroinvertebrate sampling; and
- Forest inventory and assessments.

WATER RESOURCE PROJECTS

- Performed water resource delineations and reporting, and performed wetland and stream mitigation monitoring and reporting;
- Conducted wetland and riparian buffer mitigation construction and planting oversight on various mitigation projects throughout Pennsylvania;
- Conducted wetland and stream mitigation monitoring and reporting.
- Collected water samples and onsite water quality data.

ENVIRONMENTAL PERMITTING

- Produced mitigation plans for wetland and stream impacts, including grading plans, vegetative design, vegetative planting zones, enhancement species lists;
- Performed Erosion and Sediment control inspections on gas well sites and pipeline right-of-ways;
- Assisted with a variety of environmental permitting projects; and
- Conservation Methods Storm Waste Water Wetlands;

EQUIPMENT AND MAPPING

- Perform task utilizing Trimble surveying equipment; and
- Utilize GIS software for mapping and data analysis.

COMPANY TITLE

Project Manager

EDUCATION

- *BS, Environmental Resource Management - The Pennsylvania State University, 2008*

CERTIFICATIONS

- *Professional Wetland Scientist – PWS Seal #: 2509*
- *NRCS Technical Service Provider – Wetlands (Interdisciplinary) Biological Components, Pennsylvania TSP#: 15-16310*

HEALTH & SAFETY

CERTIFICATIONS & TRAINING

- *PEC - 100555383*
- *ISN-03232988*
- *Shell Contractor HSE Handbook Sept. 2016*
- *Energy Transfer Contractor Safety Orientation – February 2016*
- *Southwest Energy Training Assurance Program (TAP) – 2015 Supplement, – February 2016*
- *Southwest Energy Training Assurance Program (TAP) 2015 – Core, – February 2016*
- *8 Hour HAZWOPER Refresher Training – AllProbe Environmental – March 2015*
- *Adult First Aid/CPR/AED Training – American Red Cross, Pennsylvania – February 2015*
- *SafeLandUSA Safety Training – PEC Safety – Pennsylvania – July 2014*

PROFESSIONAL TRAINING

- *PADEP Technical Workshops - Prepare for The New Aquatic Resource Condition Assessments (Ch. 105) – June 2017*
- *Applied Fluvial Geomorphology - Wildland Hydrology, Sheperdstown, WV– April 2016*
- *USACE & PA DEP “Pipeline Permitting and Restoration Seminar” – Marcellus Shale Coalition, Pennsylvania – November 2014*
- *Vegetation Identification for Wetland Delineation Rutgers University, New Jersey – June 2012*
- *Hydrology of Wetlands – Rutgers University, New Jersey – May 2012*
- *Methodology for Delineating Wetlands – Rutgers University, New Jersey – November 2011*
- *Riparian Buffer Design Workshop – Berks County Conservation District, Pennsylvania – March 2011*
- *“Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual”: PAPSS, DCNR Bureau of Forestry, Laporte, PA – April 2010*

Jim Haney, PWS

Jim Haney has over 9 years experience with wetland delineation and evaluation, stream restoration, permitting, and environmental monitoring in accordance with national, state, and local criteria and guidelines. Mr. Haney is a Professional Wetland Scientist (PWS) certified by the Society of Wetland Scientists (SWS) that manages the wetland delineation, permit preparation, and agency coordination for projects for WHM. Also, Jim is a certified Technical Service Provider (TSP) for the Natural Resources Conservation Service (NRCS) providing Wetlands (Interdisciplinary) Biological Components assistance to landowners in the state of Pennsylvania.

Additionally, Mr. Haney, specializes in stream restoration, including the survey and design aspects of these projects. Jim regularly works with various watershed organizations, townships and municipalities, non-profit organizations, engineering firms, energy companies, and state and federal agencies.

PROFESSIONAL EXPERIENCE

ENVIRONMENTAL PERMITTING

- Completed local, state, and federal environmental permitting for various types of development and water quality projects, which included detail studies/reports and thorough coordination with regulatory agencies; and
- Coordinated threatened and endangered species surveys through the Pennsylvania Natural Diversity Index (PNDI) program, including Pennsylvania Historical and Museum Commission (PHMC) coordination, with national and state agencies, as well as certified biologists.

WATER RESOURCE PROJECTS

- Completed and assisted with wetland and stream mitigation plans, including designs, in accordance with USACE's *Compensatory Losses of Aquatic Resources* guidance document;
- Delineated or overseen delineations for stream and wetland delineations on more than 300 miles of utility line corridors, as well as numerous land development projects;
- Has helped conduct route development, including crossing locations of stream and wetland features as well as access road placement for utility line corridors;
- Conducted surveys of a number of impaired streams, assisted in creating restoration designs, and conducted as-built surveys of restoration projects;
- Has served as construction oversight and made necessary in field adjustments on more than 3,500 feet of stream restoration projects;
- Has performed Pennsylvania Level 2 Rapid Assessment Protocols for Riverine and Wetland systems to calculate impacts and functional gain for development and mitigation projects;
- Conducted and oversaw post-construction monitoring program as part of special conditions required by Joint Permit approvals;
- Conducted water quality analysis's including: macroinvertebrate sampling and identification and habitat assessment;
- Utilized GPS units for obtaining accurate field data collection and producing detailed mapping for projects; and
- Utilized total station and laser level surveying equipment to obtain longitudinal and cross section profiles of impaired streams and as-built restoration projects.

COMPANY TITLE

Environmental Technician

EDUCATION

- *B.S. Environmental Resource Management, the Pennsylvania State University, 2010*

HEALTH & SAFETY

CERTIFICATIONS & TRAINING-

- *ISN-03894196*
- *Atlantic Sunrise safety training – September 2017*
- *Kinder Morgan Safety Orientation – October 2017*
- *Adult First Aid/CPR– American Heart Association, Pennsylvania – June 2015*
- *OSHA 40 Hour HAZWOPER Training; All Probe Environmental; October 2017*

PROFESSIONAL TRAINING

- *Stream Habitat and Measurements Techniques – National Conservation Training Center – Sheperdstown, WV, March 2017*
- *FWS Geospatial Workshop – National Conservation Training Center – Sheperdstown, WV, March 2016*
- *Overview of Wetland Delineation Protocols and the Interim NC/NE Regional Supplement to the USACE Delineation Manual – State College, PA, April 2011*

Curtis George

Curtis George graduated from the Pennsylvania State University with a B.S. degree in Environmental Resource Management and minors in Watershed and Water Resource Management and Wildlife and Fisheries sciences. Throughout his career, Curtis has worked with private, state and federal agencies to gain experience performing a wide range of biological tasks throughout the United States. He has a background with wetlands and watershed management and has gained lots of knowledge performing surveys and using GIS software.

PROFESSIONAL EXPERIENCE

ENVIRONMENTAL EXPERIENCE

- Led wetland crews to perform wetland delineations for proposed construction sites;
- Participated in surveys of biological and physical parameters for stream restoration projects;
- Performed construction oversight for wetland creation projects;
- Performed a variety of biological surveys for birds, macroinvertebrates, herps, fish and plants;
- Controlled invasive plants and animal species using both manual and chemical means;
- Raised fish for stocking in state waterways;
- Contributed to report writing and permit preparation;
- Performed post construction monitoring on various oil and gas related projects.

MAPPING AND SURVEYING

- Used survey grade Trimble equipment to perform RTK elevation surveys for various biological and resiliency projects.
- Performed bathymetry surveys for creating sediment and water movement models;
- Utilized GIS software to create maps for various projects and to manipulate survey data;
- Performed surveys and tasks using Trimble Juno Series and GeoHX handheld GPS units;
- Used various GPS units to navigate the back country.

COMPANY TITLE

*Environmental Specialist
Health and Safety Officer (HSO)*

EDUCATION

- *Environmental Soil Science, Bachelors of Science, The Pennsylvania State University, University Park, Pennsylvania, 2009*

CERTIFICATIONS

- *Professional Wetland Scientist #2560*
- *Maryland Department of the Environment Erosion & Sediment Control Responsible Person Certification #RPC010292*

PROFESSIONAL TRAINING

- *PADEP Technical Workshops - Prepare for The New Aquatic Resource Condition Assessments (Ch. 105) – June 2017*
- *Identification of Wetland Wildflowers, Swamp School, LLC - June 2016*
- *SWS Mid-Atlantic Chapter Dr. Robert Brooks of Penn State University and Riparia on Using Natural Reference Wetland Data for Wetlands Mitigation and Restoration Projects, State College, PA- April 4-5, 2014*
- *Ohio Rapid Assessment Method for Wetlands v. 5.0 2014 Training Course, April 2015*
- *PA DEP ESCGP-2 Training July 2013 State College, PA*
- *E&S Manual Training – Scranton, PA - PA Association of Conservation Districts - May 2013, at the Hilton Scranton & Conference Center*
- *Hydric Soil Indicators Field Seminar April 2013 PASS-Stoll Natural Resources Center, Wyoosox, PA*
- *Primary Headwater Habitat Assessment Training – West Woods Metro Park, Geauga County, Ohio May 2012*
- *“Planning Hydrology for Constructed Wetlands”, Wetland Training Institute, State College, PA November 2011*
- *“Grasses, Sedges, and Rushes” Pennsylvania Institute for Conservation Education, Shavers Creek Environmental Center, Huntingdon, PA August 2011*
- *Hydrology of Wetlands Rutgers University – New Jersey Agricultural Experiment Station Tuckerton, New Jersey May 2011*
- *"Functional Assessment as the Basis for Mitigation of Wetland Impacts", State College, PA – M.N. Gilbert Environmental April 2011*
- *ACOE Wetland Delineation/Regional Supplement Training Richard Chinn State College, March 2010*

Paul Fisher, PWS

Mr. Fisher is a graduate from The Pennsylvania State University in 2009, where he was awarded a Bachelors degree in Environmental Soil Science. Mr. Fisher is a Professional Wetland Scientist (PWS) certified by the Society of Wetland Scientists (SWS) that manages field and wetland crews for WHM. Mr. Fisher has over 8 years of professional experience with GIS Analysis and Mapping, environmental permitting, wetland delineations, stream assessments, pipeline routing, wetland mitigation, functional assessments, ORAM, riparian planting, project management and oversight.

Mr. Fisher is also the Health and Safety Officer at WHM responsible for the development and implementation the corporate Health and Safety Plan. He maintains safe working environments, establishes effective best practices, prevention measures, and rapid response processes. Mr. Fisher specializes in protecting workers, assets and the community in the most cost-effective manner.

PROFESSIONAL EXPERIENCE

GENERAL ENVIRONMENTAL PROJECTS

- Used GIS software for mapping and analysis;
- Used a Trimble GPS for mapping boundaries for mapping purposes;
- Composed various Environmental Reports for landfills, gas companies, wind farms, construction companies, private landowners, and regulatory agencies;
- Performed land analysis's using GIS Software for determining suitable areas for development; and
- Completed various Environmental Permits for clients.

ENVIRONMENTAL PROJECTS

- Performed wetland monitoring and maintenance on various wetlands;
- Performed Stream Surveys;
- Practiced wetland delineations using US Army Corps of Engineers Wetlands Delineation Manual 1987 and applicable regional supplements;
- Used the Pa Code Chapter 93 Water Quality Standards and Chapter 105 Dam safety and Waterway Management;
- Used surveying equipment to characterize stream profiles for mapping and design purposes;
- Delineated wetlands and water resources at several projects throughout Pennsylvania, Ohio and West Virginia; and
- Managed several wetland projects in Pennsylvania and Ohio.

HEALTH & SAFETY CERTIFICATIONS & TRAINING

- PEC - 100794102
- ISN- 02053343
- Safeland September 2016
- Shell Contractor HSE Handbook Sept. 2016
- OSHA Safety Training Working in Wetlands, Swamp School, LLC – April 2016
- Oil & Gas Safety & Health Professional Certification Feb. 2016
- Adult First Aid/CPR– American Heart Association, Pennsylvania – Feb 2016
- Energy Transfer Contractor Safety Orientation Instructor Dec. 2015
- NCCER Craft Instructor Performance Evaluator Certification October 2013
- Southwestern Energy Training Assurance Program Instructor Certification Oct. 2013
- NCCER Performance Verifications Feb. 2013 - PV151 15.1 - PV152 15.2 - PV320 32.0
- AOCFG- Abnormal Operating Conditions- Field NCCER Sept. 18, 2013
- Custom Pipeline Inspector NCCER Sept. 2013
 - Task 15 - 15.1, 15.2 & Task 32
- OSHA 40 Hour HAZWOPER Training; All Probe Environmental; June 2013
- Occupational Safety and Health Professional Certification May 2012
- Williams Contractor Safety; May 2012

COMPANY TITLE

CAD Technician/Environmental Technician

Carissa Butler

EDUCATION

- *BA, Anthropology; Journalism, Public Relations, & Advertising, Temple University, 2008*

HEALTH & SAFETY

CERTIFICATIONS & TRAINING

- *PEC - 100794100*
- *ISN- 02365544*
- *Energy Transfer Contractor Safety Orientation Dec. 2016*
- *Southwestern Energy (SWN) Training Assurance Program (TAP) Oct. 2016*
- *Sbell Contractor HSE Handbook Sept. 2016*
- *Safeland September 2016*
- *Adult First Aid/CPR– American Heart Association, Pennsylvania – Feb 2016*
- *OSHA 24 Hour HAZWOPER Training; All Probe Environmental; July 2014*

PROFESSIONAL TRAINING

- *AutoCAD Civil 3d Training; Print-O-Stat, Inc. Software Solutions Division June 2017*
- *AutoCAD Civil 3d 2017 Introduction, CAD Advisers June 2016*
- *Pennsylvania Association of Professional Soil Scientists Hydric Soils Indicators – Field Seminar and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region July 15-16, 2015*
- *Federal Energy Regulatory Commission Environmental Review and Compliance for Natural Gas Facilities Seminar Memphis, TN Feb. 10-12, 2015*
- *38 Hour Army Corps of Engineers Wetland Delineation Training, Richard Chinn Environmental Training, Inc. March 10-13, 2014*
- *Pennsylvania Association of Professional Soil Scientists Hydric Soils Indicators – Field Seminar and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region April 2013 Bradford County Conservation District Wyoxx, PA*
- *Minnesota Department of Natural Resources Project Management Leadership February 2011 St Paul, MN*
- *Alaska State and National Parks Safe Hand Tool Use and Maintenance June 2008 Anchorage, AK*

Miss Butler graduated from Temple University with degrees in Anthropology and Journalism, Public Relations, and Advertising. Since graduation, she has worked on resource restoration projects with natural resource professionals in Alaska, Minnesota, and Pennsylvania. She has been associated with numerous projects at many different levels and has gained a vast knowledge of all aspects of environmental permitting. She gained skills through her previous experiences and WHM Consulting, Inc. in various environmental projects dealing with water quality, habitat restoration, and land use. As a CADD and GIS Technician for WHM, she is responsible for developing and maintaining geographic, political and environmental databases that are pertinent to the region.

PROFESSIONAL EXPERIENCE

MAPPING AND SURVEYING

- Plan, design, draft and analyze topographic plans and details using AutoCAD Civil 3D 2013 for various projects utilizing field collected data and other associated data;
- Used GIS software for compiling field collected data, land use data, tabular data, and other data to produce figures for analysis and to calculate statistics of various environmental projects;
- Utilized GPS units for surveying various points and boundaries for mapping purposes;
- Performed land analysis's using GIS Software for determining suitable areas for development based on environmental parameters; and
- Performed surveys and tasks using Trimble Juno Series and GeoHX handheld GPS units.

ENVIRONMENTAL TECHNICIAN

- Provided on the ground project management and implementation for a variety of trail building and maintenance projects in central and southeast Alaska;
- Assisted with a variety of environmental permitting projects;
- Performed water resource delineations and reporting, and performed wetland and stream mitigation monitoring and reporting;
- Led quality control teams on previously blasted seismic testing areas in Pennsylvania State Forests and Game Lands;
- Developed curriculum and led in-field and classroom trainings and workshops on hand tool use and maintenance, science and environmental education, leadership skills, safety and risk management, and wilderness survival;
- Performed invasive species assessment and removal;
- Assisted with juvenile fish surveys via electro fishing and trapping;
- Worked on Alaska DOT and Alaska Moose Federation projects, accessing vegetative conditions surrounding highway features and employing corrective measures to facilitate safer conditions for motorists and the Alaska moose population;
- Led Alaskan native youth on backcountry camping trips and habitat restoration projects; and
- Experienced grant and proposal writer.

COMPANY TITLE

Project Manager

EDUCATION

- BA, *Environmental Studies, The Pennsylvania State University, 2006*

CERTIFICATIONS

- *Professional Wetland Scientist #2285*

HEALTH & SAFETY

CERTIFICATIONS & TRAINING

- PEC - 100794096
- ISN- 02053332
- *Energy Transfer Contractor Safety Orientation Dec. 2016*
- *Southwestern Energy (SWN) Training Assurance Program (TAP) Oct. 2016*
- *Shell Contractor HSE Handbook Sept. 2016*
- *Safeland September 2016*
- *OSHA 40 Hour HAZWOPER Training; All Probe Environmental; October 2016*
- *Adult First Aid/CPR- American Heart Association, Pennsylvania – Feb 2016*
- *Williams Contractor Safety; May 2012*

PROFESSIONAL TRAINING

- *PADEP Technical Workshops - Prepare for The New Aquatic Resource Condition Assessments (Ch. 105) – June 2017*
- *PASPGP-5 Training, Marcellus Shale Coalition, Hershey PA – July 2016*
- *Chapter 102/NPDES Training Centre & Clinton County Conservation Districts, March 2016*
- *PADEP ESCGP-2 Permit Training, State College, PA July 2013*
- *Planning Hydrology, Vegetation, and Soils for Constructed Wetlands – The Wetland Training Institute; State College, PA – Sept 10-12, 2012*
- *Erosion & Sediment (E&S) Manual Training (Northampton Co) by the PACD in conjunction PADEP August 20, 2012*
- *Primary Headwater Habitat Assessment Training – West Woods Metro Park, Geauga County, Ohio, May 23, 2012*
- *"Functional Assessment as the Basis for Mitigation of Wetland Impacts State College, PA – M N Gilbert Environmental April 2011*
- *PaDEP—Technical Review of the revised Chapter 102 Regulations, Penn Tech Campus, Williamsport, PA – Dec. 2010*
- *"Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual": PAPSS, DCNR Bureau of Forestry, Laporte, PA - April 2010*
- *Department of Environmental Protection "Regulatory Requirements Seminar for Marcellus Shale"; Harrisburg, PA - March 2010*
- *Wetland Delineator Training, Institute for Wetland & Environmental Education & Research, Inc, Tiner and Veneman, Albany, New York – July 2008*
- *Plant ID: Wetlands & Their Borders, Institute for Wetland & Environmental Education & Research, Inc, Albany, New York - July 2008*
- *DEP Stormwater Best Management Practices Manual Training Session, State College, Pennsylvania - May 2007*

Kevin Clark, PWS

Mr. Clark has over 12 years experience with wetland delineation and evaluation, permitting, mitigation design, and the preparation/management of environmental compliance documents in accordance with federal, state, and local criteria and guidelines. He is a Professional Wetland Scientist (PWS) certified by the Society of Wetland Scientists (SWS). He manages the design and construction of habitat and wetland restoration, enhancement and replacement projects. Additionally, he specializes in environmental permitting for land development projects with experience in Pennsylvania, West Virginia, Ohio and Maryland. He has continuously gained skills through his work experience and interaction with regulatory agencies. Currently, Mr. Clark manages a variety of land development and mitigation projects.

PROFESSIONAL EXPERIENCE

ENVIRONMENTAL SURVEYS & PERMITTING

- Project Management of land development projects requiring local, state and federal permit authorizations with an emphasis on energy related infrastructure, landfills and wetland/stream mitigation.
- Completed and managed small to large scale delineations throughout the in PA, OH, WV, and MD in accordance with 1987 USACE Wetland Delineation Manual and applicable regional supplements;
- Oversee subcontractors and internal personnel associated with wetland and stream restoration/mitigation projects, threatened and endangered species surveys, and archeological surveys;
- Utilized survey-grade GPS units for high accurate field data collection to produce detailed mapping;
- Proficient in providing detailed mapping and design drawings utilizing AutoCAD and ArcGIS software;
- Completed numerous watershed assessments to determine point and non-point Performed and/or managed wetland delineations
- Client and regulatory liaison for projects involving land development and environmental restoration.

WATER RESOURCE RESTORATION/MITIGATION PROJECTS

- Responsible to property acquisition of potential water resource mitigation projects;
- Completed over 100 wetland and stream mitigation plans, including design and permitting in accordance with USACE's *Compensatory Losses of Aquatic Resources* guidance document;
- Manages construction oversight and monitoring of wetland and stream restoration/mitigation projects in accordance with applicable permit conditions;
- Completed watershed assessments and restoration plans;
- Conducted water quality analysis's including: water sampling, macroinvertebrate sampling/identification and general habitat assessment;
- Managed numerous Growing Greener, Chesapeake Bay Small Watershed Grant and other grants associated with stream restoration for non-profit organizations and county conservation districts;

CONFERENCES & SEMINARS

- Federal Energy Regulatory Commission (FERC) Environmental Seminar, Marcellus Shale Coalition, State College, PA – May 2017
- Southern Gas Association (SGA) Technical Conference on Environmental Permitting & Construction, Dallas TX – Feb. 2017
- National Mitigation & Ecosystem Banking Conference, Fort Worth, TX – May 2016
- FERC "Environmental Review and Compliance for Natural Gas Facilities Seminar" Tampa, Florida – Dec. 2015
- SWS Mid-Atlantic Chapter Wetland Mitigation, Restoration and Ecology State College, PA – April 2014

COMPANY TITLE

Project Manager

EDUCATION

- B.S., *Environmental Resource Management, with minors in Watershed/Water Resources and Environmental Soil Science* The Pennsylvania State University, 2008

CERTIFICATIONS

- *Professional Wetland Scientist (PWS)*
PWS Seal # 2412

PROFESSIONAL TRAINING

- *ESCGP-2 to ESCGP-3: New PA DEP Reviewer Process and Permit Implementation Seminar; Marcellus Shale Coalition; December 13, 2017*
- *PADEP Technical Workshops - Prepare for The New Aquatic Resource Condition Assessments (Ch. 105) – June 2017*
- *PADEP MS4 Workshop, Harrisburg PA – Sept. 2016*
- *PHMSA's Proposed Rules for Natural Gas, Kinetic Pittsburgh, PA – Aug. 2016*
- *PA Marcellus Shale Coalition, PASPGP-5 Training, Hershey PA July 2016*
- *Identification of Wetland Wildflowers, Swamp School, LLC – June 2016*
- *"River Assessment & Monitoring" May 9-19, 2016 at the National Conservation Training Center Shepherdstown, WV*
- *Chapter 102/NPDES Training for Consultants and Engineers held by Clinton and Centre County Conservations Districts and PADEP – March 2016 – State College, PA*
- *PA DEP ESCGP-2 Training July 10, 2013 State College, PA*
- *Erosion & Sediment (E&S) Manual Training (Northampton Co.) by the PACD in conjunction PADEP August 20, 2012*
- *"Functional Assessment as the Basis for Mitigation of Wetland Impacts - Overview and Discussion", State College, PA – M.N. Gilbert Environmental April 2011*
- *PaDEP—Technical Review of the revised Chapter 102 Regulations, Harrisburg, PA, February 2011.*
- *Natural Channel Design Review Methodology: U.S. Fish & Wildlife Service National Conservation Training Center, Shepherdstown, WV October 2010*
- *"Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual": PAPSS, DCNR Bureau of Forestry, Loyalsock State Forest Resource Mgt Center, Laporte, PA April 2010*
- *Stream Restoration: Elements of Design Workshop II University Park, PA. August 2008*

Ryan Nelson, PWS

Mr. Nelson is a Professional Wetland Scientist (PWS) certified by the Society of Wetland Scientists (SWS) that manages the design, permitting, and construction of stream and wetland restoration projects and land development projects for WHM. He has experience dealing with water encroachment permitting, erosion and sediment control, wetland delineations, stream assessments, GIS Analysis and Mapping, and Project Management. He has continuously gained skills through his academic and work experience in various environmental projects dealing with water quality, land development, aquatic resource mitigation and restoration, and currently oversees a variety of development projects.

Mr. Nelson has been professionally trained by Wildland Hydrology in Rosgen's Natural Channel Design and is certified in Levels I, II and III - "Applied Fluvial Geomorphology", "River Morphology & Applications", and "River Assessment & Monitoring."

PROFESSIONAL EXPERIENCE

ENVIRONMENTAL PROJECT MANAGEMENT

- Oversee permitting of development projects, including pipelines, wind power generation, landfills and aquatic resource mitigation/restoration;
- Environmental Permitting for the PA DEP and U.S. Army Corp of Engineers including, but not limited to NPDES, E&S Plans, Joint Permits, and General Permits;
- Threatened & Endangered Species and Cultural Resource consultation for land development projects, including state and federally sensitive resources; and
- Client and regulatory liaison for projects involving land development and environmental restoration.

WETLAND AND STREAM PROJECTS

- Collected and analyzed data associated with stream restoration projects including, Stream Profile and Cross section data, bar sampling, pebble counts, and bathymetric data;
- Construction oversight of multiple stream restoration projects involving channel stabilization and rebuild;
- Performed wetland and stream delineations in PA, OH, and WV; and
- Performed wetland monitoring and maintenance on mitigation wetland sites.

MAPPING AND SURVEYING

- Used GIS software for compiling field collected data, land use data, tabular data, and other data to produce figures for analysis and to calculate statistics of various environmental projects;
- Utilized GPS units for surveying various points and boundaries for mapping purposes, including wetland delineations;
- AutoCAD mapping for various projects, including stream restoration and wetland mitigation projects, utilizing field collected data and other associated data;
- Use of survey equipment and AutoCAD Software in characterizing pre and post construction conditions for mapping and design purposes on various projects including stream stabilization, wetland mitigation, and other aquatic resource related projects.

BIOLOGICAL SURVEYS

- Completed and managed studies for the USFWS, DCNR, PGC, and the PFBC for rare, threatened, endangered, and species of special concern within the purview of all the above agencies.

CONFERENCES & SEMINARS

- Federal Energy Regulatory Commission (FERC) Environmental Seminar, Marcellus Shale Coalition, State College, PA - May 2017
- Southern Gas Association (SGA) "Technical Conference on Environmental Permitting & Construction" Dallas, TX Feb. 22-24, 2017
- FERC Environmental Review and Compliance for Natural Gas Facilities Seminar - Tampa, Florida – Dec 2015
- Seminar for Hardwood Forest Reforestation on Abandoned Mine Sites. Ebensburg, Pennsylvania, June 2007

COMPANY TITLE

Timber Rattlesnake & Woodrat Surveyor

EDUCATION

- *M.S. Biological Science, East Stroudsburg University 2007*
- *B.S. Wildlife and Fisheries Sciences, Pennsylvania State University 2003*

CERTIFICATIONS

- *Pennsylvania Fish & Boat Commission Approved Timber Rattlesnake Surveyor and Construction Site Monitor*
- *NJ Approved Primary Venomous Snake Monitor*

HEALTH & SAFETY

CERTIFICATIONS & TRAINING

- *ISN- 03232972*
- *40 Hour HAZWOPER – March 2016*
- *Energy Transfer Contractor Safety Orientation - December 2016*
- *Southwest Energy Training Assurance Program (TAP) – 2015 Core and Supplement – December 2016*
- *Shell Contractor HSE Handbook Sept. 2016*
- *Adult First Aid/CPR– American Heart Association, Pennsylvania – February 2016*

PROFESSIONAL TRAINING

- *Army Corps of Engineers Wetland Delineation / Regional Supplement / Waters of the United States Training – April 2016*

Philip R. Dunning

Mr. Dunning is recognized by the Pennsylvania Fish & Boat Commission as a Qualified Timber Rattlesnake Surveyor and by the New Jersey Endangered and Threatened Species Program as a Qualified Timber Rattlesnake Biologist and Surveyor. He specializes in surveys and studies of threatened and endangered species, general herpetological surveys, endangered mammal surveys, biological/ecological assessments, and natural resource inventories. He is also experienced in vernal pool surveys, Bog Turtle Surveys, presence/absence determination, and macro invertebrate sampling.

PROFESSIONAL EXPERIENCE

TIMBER RATTLESNAKE EXPERIENCE

- Oversee Timber Rattlesnake Projects;
- Led/supervised/managed phase I, II and III timber rattlesnake surveys throughout Pennsylvania and New Jersey;
- Completed and submitted final technical proposals and reports related to phase I, II and III surveys and studies;
- Published presentation abstracts and popular articles in scientific journals or newsletters;
- Conducted timber rattlesnake construction monitoring projects; and
- Timber Rattlesnake Historic Den Assessments.

OTHER RELEVANT EXPERIENCE

- Natural Environment Inventories and Analysis;
- Endangered Species Surveys;
- Qualified New Jersey Primary Venomous Snake Monitor;
- Northern Copperhead Habitat Field Work;
- Northern Copperhead Trapping for Telemetry Project;
- Bog Turtle Phase I Habitat Assessments;
- Bog Turtle Phase II Physical Surveys and Trapping Services;
- Wetland Assessments and Delineations;
- Phase I and Phase II Timber Rattlesnake Survey Crew Leader;
- Phase I Allegheny Woodrat Surveys;
- Presence/Absence surveys for Small-footed Myotis;
- Bat Mist-Netting Technician;
- Southern Hognose, Canebrake, Pine Snake Radio Tracking;
- Whip-poor-will and Chuck-Will's-Widow Point Call Survey; and
- Macro-Invertebrate Sampling.

APPENDIX C

COMPRESSOR STATION 607A WETLAND AND WATERCOURSE
DELINEATION REPORT



TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

APPENDIX C
COMPRESSOR STATION 607A WETLAND AND WATERCOURSE DELINEATION REPORT
FAIRMOUNT TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

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 - Photographic Documentation
 - Wetland, Upland and Waterway Data Forms
- B Wetland and Water Resource Summary Tables
- C Pennsylvania Level 2 Rapid Assessment Report

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

APPENDIX C
COMPRESSOR STATION 607A WETLAND AND WATERCOURSE DELINEATION REPORT
FAIRMOUNT TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

1.0 INTRODUCTION

WHM Consulting, Inc. (WHM) was retained by Transcontinental Gas Pipe Line Company, LLC (Transco) to conduct a delineation of wetland and water resources associated with the Compressor Station 607A (Project) located in Fairmount Township, Luzerne County, Pennsylvania (Figure 1 – Project Location Map). The purpose of this investigation was to determine if regulated wetlands and waters exist within the subject project area in accordance with U.S. Army Corps of Engineers (USACE) guidelines which as regulated under Section 404 of the Clean Water Act (CWA) and Pa Code 25 Chapter 105. This report provides information on the desktop analysis, data collected, delineation field findings, and results pertaining to wetland and water resources identified in the study area. The delineation was performed in March 2019, April 2019 and May 2019.

2.0 DESKTOP ANALYSIS

Prior to conducting field investigations, a review of natural resource data associated with the investigation area was completed to help establish probable areas where wetlands and watercourses could be located before conducting the onsite field investigation. The following sections outlined specific data reviewed for the investigation area.

2.1 USGS TOPOGRAPHIC AND LIDAR DATA

The 7.5 minute USGS quadrangle for Sweet Valley, Pennsylvania, was reviewed in the vicinity of the project area. For more detailed topographic information, PAMAP LiDAR (2-foot Intervals) were reviewed to determine slope breaks and microtopography that could result in wetlands and/or waterways.

2.2 AERIAL PHOTOGRAPHY

Multiple sources of online accessible current and historical aerial imagery were reviewed. In particular, leaf-off aerial imagery was evaluated for saturation that may persist long enough into the growing season to create wetland conditions.

2.3 NATIONAL WETLAND INVENTORY

The U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) mapping within and surrounding the project area is presented in Figure 2 - USDA-NRCS Soils and NWI Wetlands Map. According to NWI mapping there are no NWI wetlands located within the investigation area.

2.4 USDA/NRCS SOIL DESCRIPTIONS

The soil associations onsite are identified through the soil map units mapped by the United States Department of Agriculture – Natural Resources Conservation Service

(USDA-NRCS) in the Soil Survey of Luzerne County, Pennsylvania. In addition, the hydric soils list for Luzerne County was reviewed to determine if these soils are Hydric Soils or contain Hydric Inclusion. There are 12 soil mapping units located within the investigation area. Each soil series and their hydric rating is provided in Table 2-1.

Soil Mapping Unit	Map Unit Name	Slope (%)	Hydric Soil/ Hydric Inclusion
BkB	Bath channery silt loam	3 to 8	No
LaB	Lackawanna channery silt loam	3 to 8	No
LaC	Lackawanna channery silt loam	8 to 15	No
LaD	Lackawanna channery silt loam	15 to 25	No
LcB	Lackawanna channery silt loam, extremely stony	3 to 8	No
LcD	Lackawanna channery silt loam, extremely stony	8 to 25	No
MoB	Morris channery silt loam	0 to 8	Yes
MsB	Morris channery silt loam, extremely stony	0 to 8	Yes
OIC	Oquaga and Lordstown channery silt loam	8 to 15	No
OpD	Oquaga and Lordstown extremely stony silt loam	8 to 25	No
OXF	Oquaga and Lordstown extremely stony silt loam	Steep	No
WIB	Wellsboro channery silt loam	3 to 8	No

Table 2-1: Soil Mapping Unit and Hydric Soils Listing

3.0 RESULTS

After the completion of a desktop analysis, a formal wetland delineation was completed. Areas exhibiting the potential for regulated wetlands and waters were evaluated to determine whether they satisfied the USACE and/or PADEP requirements. Attachment A includes specific information for each resource including wetland delineation mapping, photographic documentation, and data forms. Attachment B – Wetland and Water Resource Summary Tables, provides specific information for each resource identified within the investigation area. The Pennsylvania Level 2 Rapid Assessment Report is provided in Attachment C. The following sections provide a brief summary of the resources identified within the investigation area.

3.1 WETLANDS

Ten wetlands were identified during the delineation. Most wetlands delineated are isolated. One large Palustrine Emergent (PEM)/Palustrine Forested (PFO) wetland complex was identified in the southeast corner and is hydrologically connected several stream channels. A PEM/ Palustrine scrub-shrub (PSS) wetland complex was identified in the northern portion of the investigation area. A total of 183,688 square feet of PEM wetlands, 980 square feet of PSS wetlands, and 43,760 square feet of PFO wetlands were identified during the delineation.

3.2 WATERWAYS

Nine stream channels were identified during the delineation. All channels delineated were intermittent but one, which was ephemeral. All channels flowed in an eastern direction. A total of 26,845 square feet of channel were identified. Approximately

298 square feet of ephemeral channel and 26,547 square feet of intermittent channels were identified.

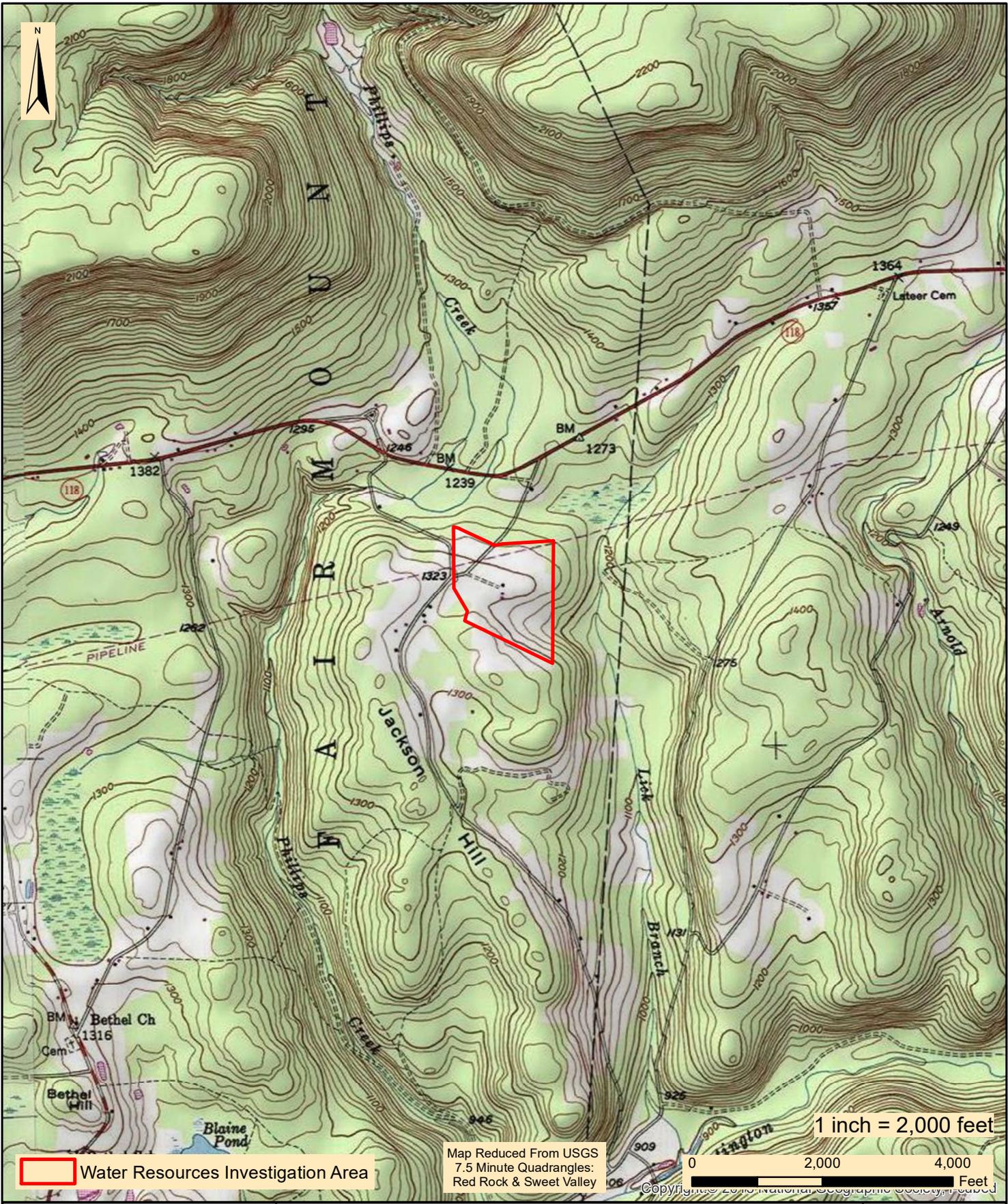
4.0 CONCLUSIONS

Based on the results of the field investigation 228,408 square feet of wetlands 26,845 square feet of stream channel were identified within the investigation area. Any impacts to the identified resources would require authorization under PADEP and USACE guidelines.

6.0 REFERENCES

- Cowardin, L. M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands deepwater habitats of the United States. U.S. Department of the Interior and the Fish and Wildlife Service, Washington, D.C.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Tech. Rep. Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, M.S.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 016-30: 1-17. Published 28 April 2016. ISSN 2153 733. http://wetland-plants.usace.army.mil/nwpl_static/v33/home/home.html
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- U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (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.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions [Online WWW]. Available URL: <http://soils.usda.gov/technical/classification/osd/index.html>. Accessed 10/6/18. USDA-NRCS, Lincoln, NE.
- United State Department of Agriculture Soil Conservation Service. 2003. Soil Survey of Luzerne County, Pennsylvania
- United States Fish and Wildlife Service. National Wetland Inventory Map, 7.5 Minute Series, Sweet Valley, Pennsylvania.
- United States Geological Survey. Topographic Quadrangle 7.5-minute Series Quadrangles, Sweet Valley, Pennsylvania.
- U.S. Geological Survey. 2018. Hydrography: National Hydrography Dataset and Watershed Boundary Dataset. <http://nhd.usgs.gov/>. Accessed October 12, 2018.

FIGURES



Water Resources Investigation Area

Map Reduced From USGS
7.5 Minute Quadrangles:
Red Rock & Sweet Valley



WHM
designs, permits, resolutions
consulting, inc.
2525 Green Tech Drive, Suite B,
State College, PA 16803
Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

LEIDY SOUTH PROJECT
COMPRESSOR STATION 607-A

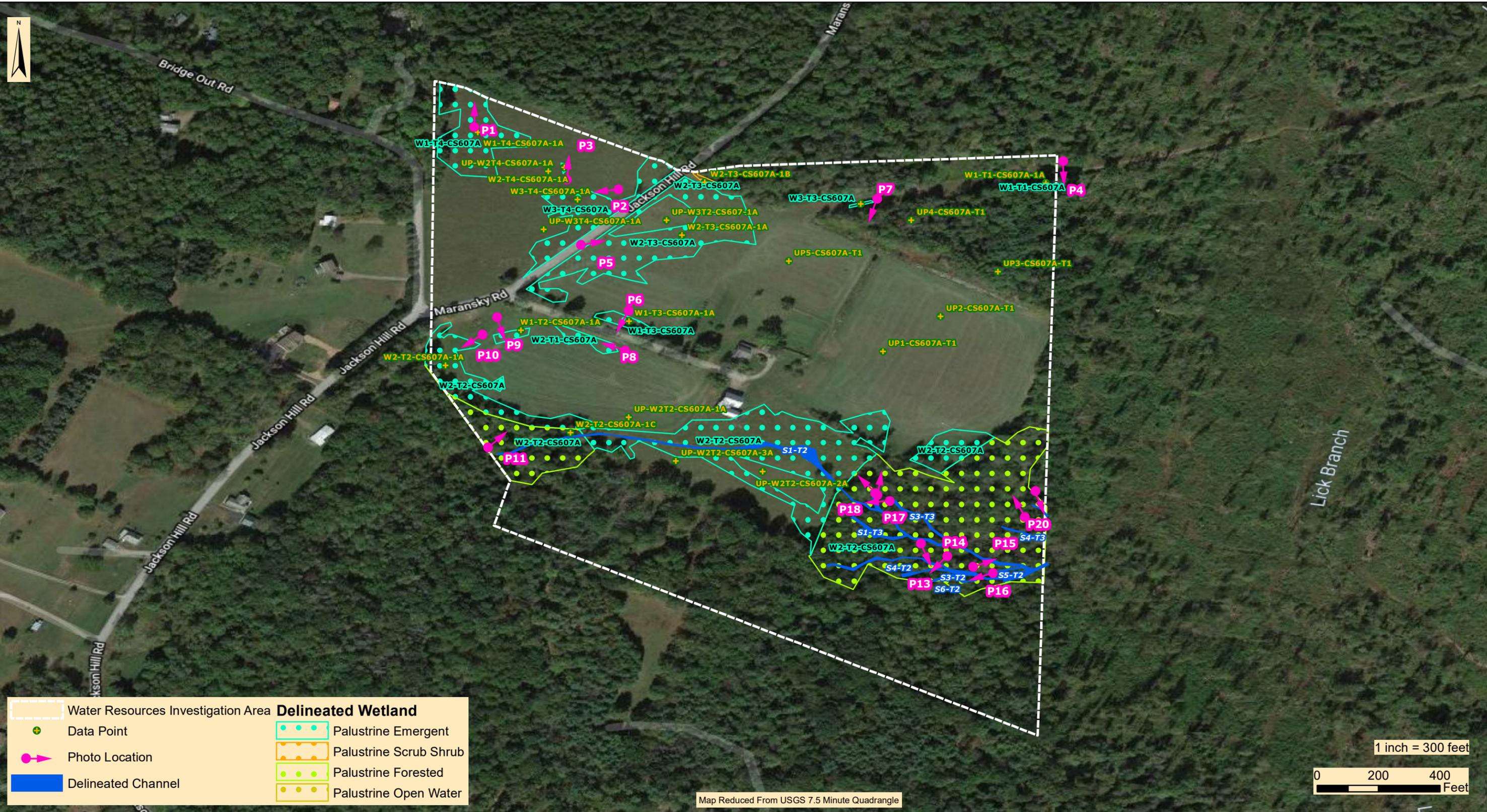
PROJECT LOCATION MAP

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

Date:	02/22/19
WHM Drawing Number:	WILLIAMS204A001
Drawn By:	JSJ
Figure Number:	1

ATTACHMENT A
WETLAND AND WATER RESOURCE DELINEATION DATA PACKAGE

WATER RESOURCES DELINEATION MAP



Water Resources Investigation Area	Palustrine Emergent
Data Point	Palustrine Scrub Shrub
Photo Location	Palustrine Forested
Delineated Channel	Palustrine Open Water

Map Reduced From USGS 7.5 Minute Quadrangle

1 inch = 300 feet

designs, permits, resolutions | consulting, inc.

2525 Green Tech Drive, Suite B,
State College, PA 16803
Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
COMPRESSOR STATION 607-A

WATER RESOURCES DELINEATION MAP

FAIRMOUNT TOWNSHIP

LUZERNE COUNTY

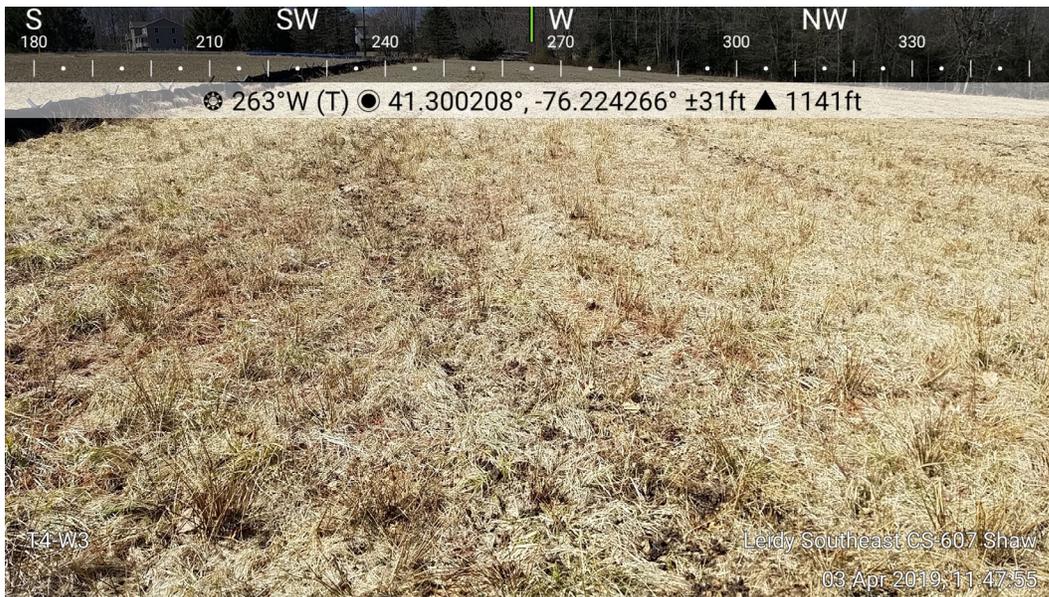
PENNSYLVANIA

Date:	07/03/19
WHM DRAWING NUMBER:	WILLIAMS204A003
Drawn By:	NJD
Figure Number:	3

PHOTOGRAPHIC DOCUMENTATION



ID: Photo 1
Date: 04/03/19
Taken by: JH
Comments:
 The photo shows a view of wetland W1-T4-CS607A.



ID: Photo 2
Date: 04/03/19
Taken by: JH
Comments:
 The photo shows a view of wetland W3-T4-CS607A.



ID: Photo 3

Date: 04/03/19

Taken by: JH

Comments:
The photo shows a view of wetland W2-T4-CS607A.



ID: Photo 4

Date: 04/03/19

Taken by: JH

Comments:
The photo shows a view of wetland W1-T4-CS607A.



ID: Photo 5

Date: 03/27/19

Taken by: JH

Comments:
The photo shows a view of wetland W2-T3-CS607A.



ID: Photo 6

Date: 03/27/19

Taken by: JH

Comments:
The photo shows a view of wetland W1-T3-CS607A.



ID: Photo 7

Date: 03/27/19

Taken by: JH

Comments:
The photo shows a view of wetland W3-T3-CS607A.



ID: Photo 8

Date: 03/26/19

Taken by: DW

Comments:
The photo shows a view of wetland W2-T1-CS607A.



ID: Photo 9
Date: 03/27/19
Taken by: DW
Comments:
 The photo shows a view of wetland W1-T2-CS607A.



ID: Photo 10
Date: 03/27/19
Taken by: DW
Comments:
 The photo shows a view of wetland W2-T2-CS607A.



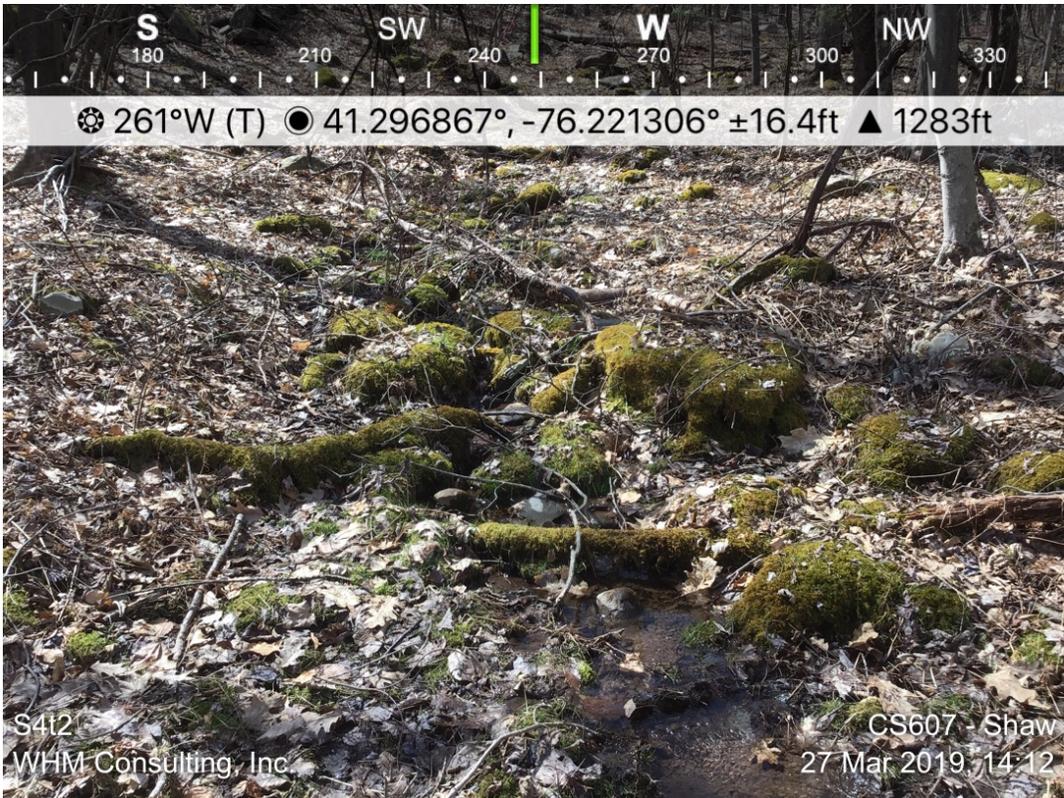
ID: Photo 11
Date: 03/27/19
Taken by: DW
Comments:
 The photo shows a view of stream S1-T2-CS607A within a PFO portion of wetland W2-T2-CS607A.



ID: Photo 12
Date: 03/27/19
Taken by: DW
Comments:
 The photo shows a view of stream S2-T2-CS607A.



ID: Photo 13
Date: 03/27/19
Taken by: DW
Comments:
 The photo shows a view of stream S3-T2-CS607A.



ID: Photo 14
Date: 03/27/19
Taken by: DW
Comments:
 The photo shows a view of stream S4-T2-CS607A.



ID: Photo 15
Date: 03/27/19
Taken by: DW
Comments:
 The photo shows a view of stream S5-T2-CS607A.



ID: Photo 16
Date: 03/27/19
Taken by: DW
Comments:
 The photo shows a view of stream S6-T2-CS607A.



ID: Photo 17
Date: 03/27/19
Taken by: JH
Comments:
 The photo shows a view of stream S1-T3-CS607A.



ID: Photo 18
Date: 03/27/19
Taken by: JH
Comments:
 The photo shows a view of stream S2-T3-CS607A.



ID: Photo 19

Date: 03/27/19

Taken by: JH

Comments:
The photo shows a view of stream S3-T3-CS607A.



ID: Photo 20

Date: 03/27/19

Taken by: JH

Comments:
The photo shows a view of stream S4-T3-CS607A.

WETLAND, UPLAND, AND WATERWAYS DATA FORMS

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/26/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point W1-T1-CS607A-1A
 Investigator(s): DW, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): concave Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.300257 Long.: -76.220326 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LcB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W1-T1-CS607-1A is located within a PEM wetland that is on the edge of a forested area.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u>X</u> No <u> </u> Depth (inches): <u>4"</u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0"</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
---	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W1-T1-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Tsuga canadensis</i>	5	Yes	FACU
2	<i>Vaccinium corybosum</i>	5	Yes	FACW
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Osmundastrum cinnamomeum</i>	15	Yes	FACW
2	<i>Rubus hispidus</i>	10	Yes	FACW
3	<i>Spiraea alba</i>	10	Yes	FACW
4	<i>Betula lenta</i>	2	No	FACU
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		37* =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	Total Cover	

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: _____ 5 _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ 80.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes No _____

Remarks: (Include photo numbers here or on a separate sheet)
 *Sphagnum moss covered 60% of aerial coverage.

SOIL

Sampling Point: W1-T1-CS607A-1A

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*	Loc**		
0-6"	10YR 4/2	90	7.5 YR 5/6	10	C	M	Clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed): Type: <u>Rock refusal (frozen)</u> Depth (inches): <u>6"</u>	Hydric soil present? Yes <u>X</u> No <u> </u>
---	---

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W1-T2-CS607A-1A
 Investigator(s): DW, CC Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): concave Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.298947 Long.: -76.225016 Datum: NAD 83
 Soil Map Unit Name: Wellsboro channery silt loam (WIB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W1-T2-CS607A-1A is located within PEM wetland. The wetland is located in a field between wetlands W2-T2-CS607A and W2-T1-CS607A.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
--	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W1-T2-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Carex lurida</i>	60	Yes	OBL
2	<i>Poa trivialis</i>	30	Yes	FACW
3	<i>Carex sp. *</i>	15	No	-
4	<i>Juncus effusus</i>	10	No	OBL
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		115 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 100.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- x _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ X _____ No _____

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

SOIL

Sampling Point: W1-T2-CS607A-1A

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*	Loc**		
0-10"	10YR 4/1	80	7.5YR 5/6	20	C	M	clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock
 Depth (inches): 10"

Hydric soil present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W1-T3-CS607A-1A
 Investigator(s): JH, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): concave Slope (%): 0 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.299025 Long.: -76.224049 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaC) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W1-T3-CS607A-1A is located within a PEM wetland in a field along an farm lane.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u>X</u> No <u> </u> Depth (inches): <u>10"</u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W1-T3-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Phleum pratense</i>	25	Yes	FACU
2	<i>Carex lurida</i>	20	Yes	OBL
3	<i>Carex vulpinoidea</i>	15	No	OBL
4	<i>Juncus effusus</i>	15	No	FACW
5	<i>Carex scoparia</i>	15	No	FACW
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		90 =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		_____ =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species 35 x 1 = 35

FACW species 30 x 2 = 60

FAC species _____ x 3 = _____

FACU species 25 x 4 = 100

UPL species _____ x 5 = _____

Column totals 90 (A) 195 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:

- 1 - Rapid test for hydrophytic vegetation
- 2 - Dominance test is >50%
- X 3 - Prevalence index is ≤3.0*
- 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes X No _____

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

SOIL

Sampling Point: W1-T3-CS607A-1A

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*	Loc**		
0-8"	10YR 4/2	95	7.5YR 4/6	5	C	M	clay loam	
8-12"	10YR4/3	85	7.5YR 4/6	15	C	M	clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

*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 - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 4/3/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W1-T4-CS607A-1A
 Investigator(s): DW, JH Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 15 to 25%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.300398 Long.: -76.224627 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaD) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W1-T4-CS607A-1A is located within a PEM wetland located in a hayfield. Wheel ruts were observed in the wetland.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Moss Trim Lines (B16)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Stunted or Stressed Plants (D1)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Microtopographic Relief (D4)

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W1-T4-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Juncus effusus</i>	40	Yes	OBL
2	<i>Poaceae sp.</i>	30	Yes	-
3	<i>Scirpus cyperinus</i>	25	Yes	FACW
4	<i>Scirpus atrovirens</i>	15	No	OBL
5	<i>Carex sp.</i>	15	No	-
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		125 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 66.67% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- x _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ X _____ No _____

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

SOIL

Sampling Point: W1-T4-CS607A-1A

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*	Loc**		
0-10"	7.5YR 4/2	85	5YR 5/6	15	C	M	silt loam	
0-14"	7.5YR 5/3	85	5YR 5/6	15	C	M	gravelly silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

*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 - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/26/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point W2-T1-CS607A-1A
 Investigator(s): DW, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): concave Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.298862 Long.: -76.224436 Datum: NAD 83
 Soil Map Unit Name: Wellsboro channery silt loam (WIB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W2-T1-CS607A-1A is a depressional PEM wetland located on the side of an existing driveway.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Microtopographic Relief (D4)

Field Observations: Surface water present? Yes <u>X</u> No <u> </u> Depth (inches): <u>3"</u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0"</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W2-T1-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Cornus amomum</i>	5	Yes	FACW
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Scirpus atrovirens</i>	30	Yes	OBL
2	<i>Phleum pratense</i>	30	Yes	FACU
3	<i>Juncus effusus</i>	20	Yes	FACW
4	<i>Carex stricta</i>	10	No	OBL
5	<i>Dichanthelium clandestinum</i>	5	No	FACW
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		95 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 4 _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ 75.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid test for hydrophytic vegetation

2 - Dominance test is >50%

_____ 3 - Prevalence index is ≤3.0*

_____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes No _____

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

SOIL

Sampling Point: W2-T1-CS607A-1A

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*	Loc**		
0-7"	10YR 2/2	95	10YR 4/6	5			Clay loam	
7-14"	10YR 4/4	100					Clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

*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 - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W2-T2-CS607A-1A
 Investigator(s): DW, CC Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.298632 Long.: -76.225689 Datum: NAD 83
 Soil Map Unit Name: Wellsboro channery silt loam (WIB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W2-T2-CS607-1A is located within the PEM portion of a PEM/PFO wetland complex that is located within a field. S1-T2 flows throughout the wetland. Evidence of grazing was present within this portion wetland.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Microtopographic Relief (D4)
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Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u>X</u> No <u> </u> Depth (inches): <u>2"</u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W2-T2-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Juncus effusus</i>	50	Yes	OBL
2	<i>Carex sp.</i>	30	Yes	-
3	<i>Poa trivialis</i>	20	Yes	FACW
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		100 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 66.67% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- x _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ X _____ No _____

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

SOIL

Sampling Point: W2-T2-CS607A-1A

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*	Loc**		
0-14"	10YR 4/1	75	7.5YR 5/6	25	C	M	clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock
 Depth (inches): 10"

Hydric soil present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: UP-W2T2-CS607A-1A
 Investigator(s): DW, CC Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): none Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.298947 Long.: -76.225016 Datum: NAD 83
 Soil Map Unit Name: Wellsboro channery silt loam (WIB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u> No </u> Hydric soil present? <u> No </u> Wetland hydrology present? <u> No </u>	Is the sampled area within a wetland? Yes <u> </u> No <u> X </u>
Remarks: <u>UP-W2T2-CS607A-1A is located within an upland area just north of wetland W2-T2-CS607A in a hayfield.</u>	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u> X </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-W2T2-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		0 =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Phleum pratense</i>	60	Yes	FACU
2	<i>Dactylis glomerata</i>	30	Yes	FACU
3	<i>Lolium perenne</i>	20	No	FACU
4	<i>Schizachyrium scoparium</i>	5	No	FACU
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		115 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 0.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species 115 x 4 = 460

UPL species _____ x 5 = _____

Column totals 115 (A) 460 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for hydrophytic vegetation

____ 2 - Dominance test is >50%

____ 3 - Prevalence index is ≤3.0*

____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet) UP-W2T2-CS607A-1A was taken in a hayfield.

SOIL

Sampling Point: UP-W2T2-CS607A-1A

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*	Loc**		
0-12"	10YR 4/3	100				M	silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock
 Depth (inches): 12"

Hydric soil present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: UP-W2T2-CS607A-2A
 Investigator(s): DW, CC Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): none Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.297686 Long.: -76.222856 Datum: NAD 83
 Soil Map Unit Name: Wellsboro channery silt loam (WIB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>No</u> Hydric soil present? <u>No</u> Wetland hydrology present? <u>No</u>	Is the sampled area within a wetland? Yes <u> </u> No <u>X</u>
Remarks: <u>UP-W2T2-CS607A-2a is located within an upland area adjacent to W2-T2-CS607A.</u>	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u>X</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-W2T2-CS607A-2A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Festuca rubra</i>	60	Yes	FACU
2	<i>Potentilla pensylvanica</i>	15	Yes	FACU
3	<i>Juncus effusus</i>	5	No	OBL
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		80 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 0.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ 5 _____ x 1 = _____ 5 _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ 75 _____ x 4 = _____ 300 _____

UPL species _____ x 5 = _____

Column totals _____ 80 _____ (A) _____ 305 _____ (B)

Prevalence Index = B/A = _____ 3.81 _____

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid test for hydrophytic vegetation

_____ 2 - Dominance test is >50%

_____ 3 - Prevalence index is ≤3.0*

_____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes _____ No _____ X

Remarks: (Include photo numbers here or on a separate sheet) UP-W2T2-CS607A-2A was taken in a horse pasture.

SOIL

Sampling Point: UP-W2T2-CS607A-2A

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*	Loc**		
0-8"	10YR 3/1	100					silt loam	
8-12"	10YR 3/2	100					silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: rock
 Depth (inches): 12"

Hydric soil present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: UP-W2T2-CS607A-3A
 Investigator(s): DW, CC Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): none Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.297781 Long.: -76.223632 Datum: NAD 83
 Soil Map Unit Name: Wellsboro channery silt loam (WIB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>No</u> Hydric soil present? <u>No</u> Wetland hydrology present? <u>No</u>	Is the sampled area within a wetland? Yes <u> </u> No <u>X</u>
Remarks: <u>UP-W2T2-CS607A-3a is located within an upland area adjacent to W2-T2-CS607A.</u>	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u>X</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-W2T2-CS607A-3A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		0 =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Festuca rubra</i>	60	Yes	FACU
2	<i>Polytrichum sp.</i>	20	No	-
3	<i>Schizachyrium scoparium</i>	10	No	FACU
4	<i>Fragaria virginiana</i>	10	No	FACU
5	<i>Carex sp.</i>	10	No	-
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		110 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 0.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species 80 x 4 = 320

UPL species _____ x 5 = _____

Column totals 80 (A) 320 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet) UP-W2T2-CS607A-3A was taken in a horse pasture.

SOIL

Sampling Point: UP-W2T2-CS607A-3A

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*	Loc**		
0-4"	10YR 3/1	100					silt loam	
4-12"	10YR 3/3	100					silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: rock
 Depth (inches): 12"

Hydric soil present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W2-T2-CS607A-1C
 Investigator(s): DW, CC Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): concave Slope (%): 0 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.298034 Long.: -76.224574 Datum: NAD 83
 Soil Map Unit Name: Morris channery silt loam (MoB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W2-T2-CS607A-1C is located in the western PFO portion of W2-T2-CS607A, a large PEM/PFO wetland complex. Channel S1-T2 flows throughout this portion of the wetland.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> <input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> <input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> <input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> <input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> <input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u>X</u> No <u> </u> Depth (inches): <u>6"</u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
--	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W2-T2-CS607A-1C

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<u>Acer rubrum</u>	80	Yes	FAC
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<u>Vaccinium corymbosum</u>	10	Yes	FACW
2	<u>Rosa multiflora</u>	5	Yes	FACU
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		15 =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<u>Onoclea sensibilis</u>	20	Yes	FACW
2	<u>Carex sp.</u>	20	Yes	-
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		_____ =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 60.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- 1 - Rapid test for hydrophytic vegetation
- x 2 - Dominance test is >50%
- 3 - Prevalence index is ≤3.0*
- 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes X No _____

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

SOIL

Sampling Point: W2-T2-CS607A-1C

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*	Loc**		
0-14"	10YR 5/1	90	7.5YR 5/6	10	C	M	clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*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 - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W2-T3-CS607A-1A
 Investigator(s): JH, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.299797 Long.: -76.223577 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W2-T3-CS607A-1A is located within wetland W2-T3-CS607A, a PEM/PSS wetland complex located within a hayfield above a pipeline ROW. Water conveys across pipeline and into PSS wetland.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u>X</u> No <u> </u> Depth (inches): <u>1-2"</u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0"</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
---	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W2-T3-CS607A-1A

<u>Tree Stratum</u> (Plot Size: _____ 30' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
	_____ =	Total Cover	

<u>Sapling/Shrub Stratum</u> (Plot Size: _____ 15' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
	_____ =	Total Cover	

<u>Herb Stratum</u> (Plot Size: _____ 5' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Scirpus atrovirens</i> 25	Yes	OBL
2	<i>Scirpus cyperinus</i> 25	Yes	FACW
3	<i>Juncus effusus</i> 20	Yes	FACW
4	<i>Carex lurida</i> 15	No	OBL
5	<i>Onoclea sensibilis</i> 15	No	FACW
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	100 =	Total Cover	

<u>Woody Vine Stratum</u> (Plot Size: _____ 30' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	_____ =	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: _____ 100.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- 1 - Rapid test for hydrophytic vegetation
- 2 - Dominance test is >50%
- 3 - Prevalence index is ≤3.0*
- 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes No _____

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

SOIL

Sampling Point: W2-T3-CS607A-1A

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*	Loc**		
0-10"	10YR 4/2	90	7.5YR 4/6	10	C	M	silt loam	

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

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: UP-W2T3-CS607-1A
 Investigator(s): JH, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.299928 Long.: -76.223715 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation Y, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes No X
 Are vegetation N, soil N, or hydrology N 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? <u> No </u> Hydric soil present? <u> Yes </u> Wetland hydrology present? <u> No </u>	Is the sampled area within a wetland? Yes <u> </u> No <u> X </u>
Remarks: UP-W3T2-CS607-1A is located within an upland area in the center of wetland W2-T3-CS607A. Area was recently disturbed by pipeline construction. Wetlands surround most of this area except within a portion of the recently disturbed pipeline ROW.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u> X </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-W2T3-CS607-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Lolium perenne</i>	80	Yes	FACU
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		80* =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		_____ =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 0.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species 80 x 4 = 320

UPL species _____ x 5 = _____

Column totals 80 (A) 320 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet)
 * 20% of coverage comprised of rock and bare ground.

SOIL

Sampling Point: UP-W2T3-CS607-1A

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*	Loc**		
0-10"	10YR 4/2	80	7.5YR 4/6	20	C	M		soils were disturbed

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

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W2-T3-CS607A-1B
 Investigator(s): JH, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.300267 Long.: -76.223373 Datum: NAD 83
 Soil Map Unit Name: Morris channery silt loam (MoB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes No X
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W2-T3-CS607A-1B is located within the PSS portion of wetland W2-T3-CS607, a PEM/PSS wetland complex located within a hayfield along a pipeline ROW. The PSS area receives hydrology from the PEM portion of the wetland. Recent soil deposition.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u>X</u> No <u> </u> Depth (inches): <u>6"</u> Water table present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0"</u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0"</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W2-T3-CS607A-1B

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Rosa multiflora</i>	40	Yes	FACU
2	<i>Salix discolor</i>	20	Yes	FACW
3	<i>Berberis thunbergii</i>	10	No	FACU
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		70 =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Microstegium vimineum</i>	15	Yes	FAC
2	<i>Onoclea sensibilis</i>	5	No	FACW
3	<i>Solidago rugosa</i>	5	No	FAC
4	<i>Dichanthelium clandestinum</i>	5	No	FACW
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		30 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: _____ 67.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes No _____

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

SOIL

Sampling Point: W2-T3-CS607A-1B

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*	Loc**		
0-3"	10YR 3/1	100					silt loam	rock refusal

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: Rock refusal
 Depth (inches): 3

Hydric soil present? Yes No

Remarks: Soils were problematic due to recent construction.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 4/3/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W2-T4-CS607A-1A
 Investigator(s): DW, JH Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 8 to 15%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.300398 Long.: -76.224627 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaC) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W2-T4-CS607A-1A is located within wetland W2-T3-607A, a PEM wetland situated in a hayfield.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W2-T4-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Juncus effusus</i>	40	Yes	OBL
2	<i>Scirpus cyperinus</i>	30	Yes	FACW
3	<i>Poa trivialis</i>	20	Yes	FACW
4	<i>Carex sp.</i>	15		-
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		105 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 66.67% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- x _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ X _____ No _____

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

SOIL

Sampling Point: W2-T4-CS607A-1A

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*	Loc**		
0-14"	7.5YR 4/1	90	7.5YR 5/6	10	C	M	clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

*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 - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 4/3/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: UP-W2T4-CS607A-1A
 Investigator(s): DW, JH Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 8-15%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.300363 Long.: -76.224771 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaC) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u> No </u> Hydric soil present? <u> No </u> Wetland hydrology present? <u> No </u>	Is the sampled area within a wetland? Yes <u> </u> No <u> X </u>
Remarks: <u>UP-W2T4-CS607A-1A is located within an upland area just west of wetland W2-T4-CS607A in a hayfield.</u>	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u> X </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-W2T4-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)	Absolute % Cover	Dominant Species	Indicator Staus
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
	_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)	Absolute % Cover	Dominant Species	Indicator Staus
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
	0 =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)	Absolute % Cover	Dominant Species	Indicator Staus
1 _____ <i>Poaacea sp.</i>	60	60	-
2 _____ <i>Plantago lanceolata</i>	25	25	UPL
3 _____ <i>Schizachyrium scoparium</i>	25	25	FACU
4 _____ <i>Rubus hispidus</i>	10	10	FACW
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	_____	_____	_____
	120 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)	Absolute % Cover	Dominant Species	Indicator Staus
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
	_____ =	Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species 10 x 2 = 20

FAC species _____ x 3 = _____

FACU species 25 x 4 = 100

UPL species 25 x 5 = 125

Column totals 60 (A) 245 (B)

Prevalence Index = B/A = 4.08

Hydrophytic Vegetation Indicators:

- 1 - Rapid test for hydrophytic vegetation
- 2 - Dominance test is >50%
- 3 - Prevalence index is ≤3.0*
- 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ No X

Remarks: (Include photo numbers here or on a separate sheet) UP-W2T4-CS607A-1A was taken in a hayfield.

SOIL

Sampling Point: UP-W2T4-CS607A-1A

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*	Loc**		
0-8"	7.5YR 4/4	100					gravelly silt loam	Rock refusal

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: rock
 Depth (inches): 8"

Hydric soil present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/27/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W3-T3-CS607A-1A
 Investigator(s): JH, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): concave Slope (%): 0 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.300071 Long.: -76.22198 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaC) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W3-T3-CS607A-1A is located within wetland W3-T3-CS607A that is in an exsiting pipeline ROW.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u>X</u> No <u> </u> Depth (inches): <u>5"</u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0"</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W3-T3-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Microstegium vimineum</i>	50	Yes	FAC
2	<i>Scirpus atrovirens</i>	25	Yes	OBL
3	<i>Carex scoparia</i>	15	No	FACW
4	<i>Juncus tenuis</i>	10	No	FAC
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		100 =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		_____ =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 100.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ 1 - Rapid test for hydrophytic vegetation

2 - Dominance test is >50%

_____ 3 - Prevalence index is ≤3.0*

_____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes No _____

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

SOIL

Sampling Point: W3-T3-CS607A-1A

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*	Loc**		
0-8"	10YR 4/2	80	7.5YR 4/6	20	C	M	Rocky clay loam	

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

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: Rock
 Depth (inches): 8"

Hydric soil present? Yes X No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 4/3/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: UP-W3T4-CS607A-1A
 Investigator(s): DW, JH Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0-8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.299844 Long.: -76.224813 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u> No </u> Hydric soil present? <u> No </u> Wetland hydrology present? <u> No </u>	Is the sampled area within a wetland? Yes <u> </u> No <u> X </u>
Remarks: <u>UP-W3T4-CS607A-1A is located within an upland area just west of wetland W3-T4-CS607A in a hayfield.</u>	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u> X </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP-W3T4-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		0 =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Sorghum bicolor</i>	40	Yes	UPL
2	<i>Trifolium repens</i>	30	Yes	FACU
3	<i>Dactylis glomerata</i>	30	Yes	FACU
4	<i>Plantago lanceolata</i>	15	No	UPL
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		115 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species 60 x 4 = 240

UPL species 55 x 5 = 275

Column totals 115 (A) 515 (B)

Prevalence Index = B/A = 4.48

Hydrophytic Vegetation Indicators:

- 1 - Rapid test for hydrophytic vegetation
- 2 - Dominance test is >50%
- 3 - Prevalence index is ≤3.0*
- 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes No X

Remarks: (Include photo numbers here or on a separate sheet) UP-W3T4-CS607A-1A was taken in a hayfield.

SOIL

Sampling Point: UP-W3T4-CS607A-1A

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*	Loc**		
0-8"	7.5YR 4/3	100					gravelly silt loam	soils were compacted
8-14"	7.5YR 4/4						gravelly silt loam	soils were compacted

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: rock
 Depth (inches): 14"

Hydric soil present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/26/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point UP1-CS607A-T1
 Investigator(s): DW, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): convex Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.298758 Long.: -76.221782 Datum: NAD 83
 Soil Map Unit Name: Lackawana channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u> No </u> Hydric soil present? <u> No </u> Wetland hydrology present? <u> No </u>	Is the sampled area within a wetland? Yes <u> </u> No <u> X </u>
Remarks: UP1-CS607A-T1 is located within an upland area of a hayfield.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u> X </u>
---	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP1-CS607A-T1

<u>Tree Stratum</u> (Plot Size: _____ 30' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
	_____ =	Total Cover	

<u>Sapling/Shrub Stratum</u> (Plot Size: _____ 15' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
	_____ =	Total Cover	

<u>Herb Stratum</u> (Plot Size: _____ 5' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	50	<i>Dactylis glmoerata</i> Yes	FACU
2	50	<i>Phleum pratense</i> Yes	FACU
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	100 =	Total Cover	

<u>Woody Vine Stratum</u> (Plot Size: _____ 30' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	_____ =	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: _____ 0.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species 100 x 4 = 400

UPL species _____ x 5 = _____

Column totals _____ 100 (A) _____ 400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid test for hydrophytic vegetation

____ 2 - Dominance test is >50%

____ 3 - Prevalence index is ≤3.0*

____ 4 - Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes _____ No X

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

SOIL

Sampling Point: UP1-CS607A-T1

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*	Loc**		
0-12"	10YR 4/4	100					silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/26/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point UP2-CS607A-T1
 Investigator(s): DW, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): convex Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.299069 Long.: -76.221266 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u> No </u> Hydric soil present? <u> No </u> Wetland hydrology present? <u> No </u>	Is the sampled area within a wetland? Yes <u> </u> No <u> X </u>
Remarks: UP2-CS607A-T1 is located within an upland area of a hayfield	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u> X </u>
---	---

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP2-CS607A-T1

Tree Stratum (Plot Size: _____ 30' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
	_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
	_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	50	Phleum pratense	FACU
2	30	Dactylis glomerata	FACU
3	10	Schizachyrium scoparium	FACU
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	90* =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	_____ =	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: _____ 0.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species 90 x 4 = 360

UPL species _____ x 5 = _____

Column totals 90 (A) 360 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ No X

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

SOIL

Sampling Point: UP2-CS607A-T1

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*	Loc**		
0-8"	10YR 4/4	100					Silt loam	
8-14"	10YR 4/6	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/26/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point UP3-CS607A-T1
 Investigator(s): DW, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): none Slope (%): 0-8
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.299468 Long.: -76.220755 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>No</u> Hydric soil present? <u>No</u> Wetland hydrology present? <u>No</u>	Is the sampled area within a wetland? Yes <u> </u> No <u>X</u>
Remarks: UP3-CS607A-T1 is located in an upland area	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u>X</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP3-CS607A-T1

Tree Stratum (Plot Size: 30')

	Absolute % Cover	Dominant Species	Indicator Staus
1 <u>Pinus strobus</u>	75	Yes	FACU
2 <u>Tsuga canadensis</u>	25	Yes	FACU
3 <u>Acer rubrum</u>	10	No	FAC
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
	<u>110</u> =	Total Cover	

Sapling/Shrub Stratum (Plot Size: 15')

	Absolute % Cover	Dominant Species	Indicator Staus
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
	_____ =	Total Cover	

Herb Stratum (Plot Size: 5')

	Absolute % Cover	Dominant Species	Indicator Staus
1 <u>Lycopodium obscurum</u>	40	Yes	UPL
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	_____	_____	_____
	<u>40</u> =	Total Cover	

Woody Vine Stratum (Plot Size: 30')

	Absolute % Cover	Dominant Species	Indicator Staus
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
	_____ =	Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 10 x 3 = 30

FACU species 100 x 4 = 400

UPL species 40 x 5 = 200

Column totals 150 (A) 630 (B)

Prevalence Index = B/A = 4.20

Hydrophytic Vegetation Indicators:

1 - Rapid test for hydrophytic vegetation

2 - Dominance test is >50%

3 - Prevalence index is ≤3.0*

4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes _____ No X

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

SOIL

Sampling Point: UP3-CS607A-T1

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*	Loc**		
0-12"	10YR 4/4	100						

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/26/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point UP4-CS607A-T1
 Investigator(s): DW, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): none Slope (%): 3 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.299928 Long.: -76.221528 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>No</u> Hydric soil present? <u>No</u> Wetland hydrology present? <u>No</u>	Is the sampled area within a wetland? Yes <u> </u> No <u>X</u>
Remarks: UP4-CS607A-T1 is located within an upland forest situated between a field and an existing pipeline ROW.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u>X</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP4-CS607A-T1

<u>Tree Stratum</u> (Plot Size: _____ 30' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	<u>30</u>	<u>Yes</u>	<u>FAC</u>
2	<u>20</u>	<u>Yes</u>	<u>FACU</u>
3	<u>20</u>	<u>Yes</u>	<u>FACU</u>
4	<u>10</u>	<u>No</u>	<u>FACU</u>
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
	<u>80</u> =	Total Cover	

<u>Sapling/Shrub Stratum</u> (Plot Size: _____ 15' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	<u>5</u>	<u>Yes</u>	<u>FACU</u>
2	<u>5</u>	<u>Yes</u>	<u>FACW</u>
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
	<u>10</u> =	Total Cover	

<u>Herb Stratum</u> (Plot Size: _____ 5' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	<u>20</u>	<u>Yes</u>	<u>FACU</u>
2	<u>15</u>	<u>Yes</u>	<u>FAC</u>
3	<u>15</u>	<u>Yes</u>	<u>FACU</u>
4	<u>15</u>	<u>Yes</u>	<u>FACU</u>
5	<u>10</u>	<u>-</u>	<u>-</u>
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	<u>75</u> =	Total Cover	

<u>Woody Vine Stratum</u> (Plot Size: _____ 30' _____)			
	Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	_____ =	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: 9 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species x 1 =

FACW species 5 x 2 = 10

FAC species 45 x 3 = 135

FACU species 105 x 4 = 420

UPL species 0 x 5 = 0

Column totals 155 (A) 565 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

 1 - Rapid test for hydrophytic vegetation

 2 - Dominance test is >50%

 3 - Prevalence index is ≤3.0*

 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Yes No X

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

SOIL

Sampling Point: UP4-CS607A-T1

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*	Loc**		
0-10"	10YR 4/4	100					gravelly silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock
 Depth (inches): 10"

Hydric soil present? Yes X No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 3/26/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point UP5-CS607A-T1
 Investigator(s): DW, CG Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hilltop Local relief (concave, convex, none): convex Slope (%): 0-8
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.299561 Long.: -76.222624 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u> No </u> Hydric soil present? <u> No </u> Wetland hydrology present? <u> No </u>	Is the sampled area within a wetland? Yes <u> </u> No <u> X </u>
Remarks: UP5-CS607A-T1 is located within an upland area of a hayfield.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Microtopographic Relief (D4)
<input type="checkbox"/> Aquatic Fauna (B13)	
<input type="checkbox"/> Marl Deposits (B15)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations: Surface water present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Saturation present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland hydrology present? Yes <u> </u> No <u> X </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UP5-CS607A-T1

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Phleum pratense</i>	50	Yes	FACU
2	<i>Dactylis glomerata</i>	40	Yes	FACU
3	<i>Schizachyrium scoparium</i>	10	No	FACU
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		100 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: _____ 0.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species 100 x 4 = 400

UPL species _____ x 5 = _____

Column totals 100 (A) 400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ No X

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

SOIL

Sampling Point: UP5-CS607A-T1

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*	Loc**		
0-12"	10YR 3/3	100					silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

- Histisol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (**LRR R, MLRA 149B**)
- Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- Loamy Mucky Mineral (F1) (**LRR K, L**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

- 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- Coast Prairie Redox (A16) (**LRR K, L, R**)
- 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- Dark Surface (S7) (**LRR K, L**)
- Polyvalue Below Surface (S8) (**LRR K, L**)
- Thin Dark Surface (S9) (**LRR K, L**)
- Iron-Manganese Masses (F12) (**LRR K, L, R**)
- Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Compressor Station 607-A City/County: Luzerne County Sampling Date: 4/3/19
 Applicant/Owner: Transcontinental Gas Pipe Line Company, LLC State: PA Sampling Point: W3-T4-CS607A-1A
 Investigator(s): DW, JH Section, Township, Range: Fairmont Township
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 0 to 8%
 Subregion (LRR or MLRA): MLRA 140 Lat.: 41.300111 Long.: -76.224509 Datum: NAD 83
 Soil Map Unit Name: Lackawanna channery silt loam (LaB) NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes X No (If no, explain in remarks)
 Are vegetation N, soil N, or hydrology N significantly disturbed? Are "normal circumstances" present? Yes X No
 Are vegetation N, soil N, or hydrology N 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? <u>Yes</u> Hydric soil present? <u>Yes</u> Wetland hydrology present? <u>Yes</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u>
Remarks: W3-T4-CS607A-1A is located within a PEM wetland situated in a field along an existing road.	

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Microtopographic Relief (D4)
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Field Observations: Surface water present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water table present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation present? Yes <u>X</u> No <u> </u> Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland hydrology present? Yes <u>X</u> No <u> </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: W3-T4-CS607A-1A

Tree Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Sapling/Shrub Stratum (Plot Size: _____ 15' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
		_____ =	Total Cover	

Herb Stratum (Plot Size: _____ 5' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	<i>Juncus effusus</i>	40	Yes	OBL
2	<i>Scirpus cyperinus</i>	25	Yes	FACW
3	<i>Theylypteris sp.</i>	20	No	FACW
4	<i>Poaceae sp.</i>	20	No	-
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
		105 =	Total Cover	

Woody Vine Stratum (Plot Size: _____ 30' _____)		Absolute % Cover	Dominant Species	Indicator Staus
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
		_____ =	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: _____ 100.00% _____ (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column totals _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- _____ 1 - Rapid test for hydrophytic vegetation
- x _____ 2 - Dominance test is >50%
- _____ 3 - Prevalence index is ≤3.0*
- _____ 4 - Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- _____ 5 - Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present?

Yes _____ X _____ No _____

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

SOIL

Sampling Point: W3-T4-CS607A-1A

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*	Loc**		
0-14"	7.5YR 4/2	85	7.5YR 5/6	15	C	M, PL	clay loam	

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

Hydric Soil Indicators:

Indicators for Problematic Hydric Soils:

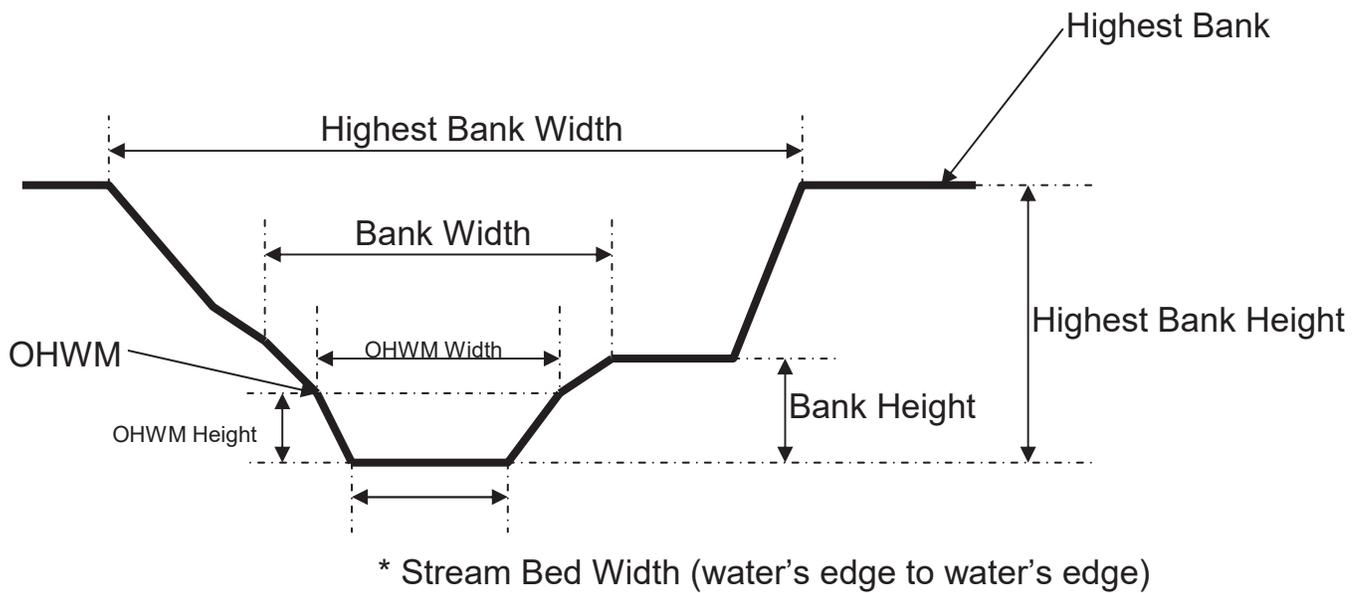
- | | | |
|---|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B) | <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B) | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L) | <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> Stratified Layers (A5) | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) | <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) | <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) | <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | <input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B) |
| <input type="checkbox"/> Sandy Redox (S5) | | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stripped Matrix (S6) | | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B) | | <input type="checkbox"/> Other (Explain in Remarks) |

*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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:

<input type="checkbox"/> ROW <input checked="" type="checkbox"/> Project Facility STATE <u>PA</u> <input type="checkbox"/> Access Road <input type="checkbox"/> Staging/Storage Area																												
County: Luzerne	Stream Name: <input checked="" type="checkbox"/> UNNAMED <input type="checkbox"/> NAMED: _____																											
Date: 3/27/19	Stream Type: <input checked="" type="checkbox"/> STREAM <input type="checkbox"/> DITCH/CANAL																											
Map No. :	Observers: DW/ CC																											
CHARACTERISTICS																												
Water Present: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no Flow Type: <input type="checkbox"/> Perennial <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Ephemeral Stream Flow Direction: <u>East</u> Width (ft) (water's edge to water's edge): <u>1-2'</u> Width (ft) (bank to bank): <u>1-2'</u> (above OHWM; use OHWM Criteria below)	<table style="width:100%; border: none;"> <tr> <td style="width:33%;"><u>Substrate Type</u></td> <td style="width:33%;"><u>Probed Stream Depth</u></td> <td style="width:33%;"><u>Water Clarity</u></td> </tr> <tr> <td><input type="checkbox"/> Bedrock</td> <td><input type="checkbox"/> N/A</td> <td><input type="checkbox"/> Clear</td> </tr> <tr> <td><input checked="" type="checkbox"/> Gravel</td> <td><input checked="" type="checkbox"/> 0 – 6"</td> <td><input type="checkbox"/> Discolored</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sand</td> <td><input type="checkbox"/> 7 – 12"</td> <td><input type="checkbox"/> Oily Film</td> </tr> <tr> <td><input type="checkbox"/> Silt</td> <td><input type="checkbox"/> 13 – 24"</td> <td><input type="checkbox"/> Other _____</td> </tr> <tr> <td><input type="checkbox"/> Cobbles</td> <td><input type="checkbox"/> 25 – 36"</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Clay</td> <td><input type="checkbox"/> 37" +</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Concrete</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Other <u>Muck</u></td> <td></td> <td></td> </tr> </table>	<u>Substrate Type</u>	<u>Probed Stream Depth</u>	<u>Water Clarity</u>	<input type="checkbox"/> Bedrock	<input type="checkbox"/> N/A	<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Gravel	<input checked="" type="checkbox"/> 0 – 6"	<input type="checkbox"/> Discolored	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> 7 – 12"	<input type="checkbox"/> Oily Film	<input type="checkbox"/> Silt	<input type="checkbox"/> 13 – 24"	<input type="checkbox"/> Other _____	<input type="checkbox"/> Cobbles	<input type="checkbox"/> 25 – 36"		<input type="checkbox"/> Clay	<input type="checkbox"/> 37" +		<input type="checkbox"/> Concrete			<input checked="" type="checkbox"/> Other <u>Muck</u>		
<u>Substrate Type</u>	<u>Probed Stream Depth</u>	<u>Water Clarity</u>																										
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<input checked="" type="checkbox"/> Gravel	<input checked="" type="checkbox"/> 0 – 6"	<input type="checkbox"/> Discolored																										
<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> 7 – 12"	<input type="checkbox"/> Oily Film																										
<input type="checkbox"/> Silt	<input type="checkbox"/> 13 – 24"	<input type="checkbox"/> Other _____																										
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<input type="checkbox"/> Clay	<input type="checkbox"/> 37" +																											
<input type="checkbox"/> Concrete																												
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*Stream bed width is variable

DEFINITIONS:

Perennial: has flowing water year-round during a typical year.

Intermittent: has flowing water during certain times of the year, when groundwater provides water for stream flow.

Ephemeral: has flowing water only during, and for a short duration after, precipitation events in a typical year.

Run: A reach of stream characterized by fast flowing low turbulence water.

Riffle: A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.

Pool: A reach of stream that is characterized by deep low velocity water and a smooth surface.

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CHARACTERISTICS	CHARACTERISTICS																											
Water Present: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no Flow Type: <input type="checkbox"/> Perennial <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Ephemeral Stream Flow Direction: <u>East</u> Width (ft) (water's edge to water's edge): <u>1</u> Width (ft) (bank to bank): <u>1</u> (above OHWM; use OHWM Criteria below)	<table style="width:100%; border: none;"> <tr> <td style="width:33%;">Substrate Type</td> <td style="width:33%;">Probed Stream Depth</td> <td style="width:33%;">Water Clarity</td> </tr> <tr> <td><input type="checkbox"/> Bedrock</td> <td><input type="checkbox"/> N/A</td> <td><input checked="" type="checkbox"/> Clear</td> </tr> <tr> <td><input type="checkbox"/> Gravel</td> <td><input checked="" type="checkbox"/> 0 – 6"</td> <td><input type="checkbox"/> Discolored</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sand</td> <td><input type="checkbox"/> 7 – 12"</td> <td><input type="checkbox"/> Oily Film</td> </tr> <tr> <td><input type="checkbox"/> Silt</td> <td><input type="checkbox"/> 13 – 24"</td> <td><input type="checkbox"/> Other _____</td> </tr> <tr> <td><input checked="" type="checkbox"/> Cobbles</td> <td><input type="checkbox"/> 25 – 36"</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Clay</td> <td><input type="checkbox"/> 37"+</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Concrete</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Other <u>muck</u></td> <td></td> <td></td> </tr> </table>	Substrate Type	Probed Stream Depth	Water Clarity	<input type="checkbox"/> Bedrock	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Gravel	<input checked="" type="checkbox"/> 0 – 6"	<input type="checkbox"/> Discolored	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> 7 – 12"	<input type="checkbox"/> Oily Film	<input type="checkbox"/> Silt	<input type="checkbox"/> 13 – 24"	<input type="checkbox"/> Other _____	<input checked="" type="checkbox"/> Cobbles	<input type="checkbox"/> 25 – 36"		<input type="checkbox"/> Clay	<input type="checkbox"/> 37"+		<input type="checkbox"/> Concrete			<input checked="" type="checkbox"/> Other <u>muck</u>		
Substrate Type	Probed Stream Depth	Water Clarity																										
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BANK HEIGHT AND SLOPE	ASSOCIATED HABITAT																											
<table style="width:100%; border: none;"> <tr> <td style="width:50%;">Left Bank*</td> <td style="width:50%;">Right Bank*</td> </tr> <tr> <td>Height (ft): <u>1/2</u></td> <td>Height (ft): <u>1/2</u></td> </tr> <tr> <td>Slope: <input type="checkbox"/> 0-30° (4:1)</td> <td>Slope: <input type="checkbox"/> 0-30° (4:1)</td> </tr> <tr> <td><input type="checkbox"/> 31-45° (3:1)</td> <td><input type="checkbox"/> 31-45° (3:1)</td> </tr> <tr> <td><input type="checkbox"/> 46-60° (2:1)</td> <td><input type="checkbox"/> 46-60° (2:1)</td> </tr> <tr> <td><input checked="" type="checkbox"/> 61-90° (1:1)</td> <td><input checked="" type="checkbox"/> 61-90° (1:1)</td> </tr> </table> Height (ft) (OHWM from stream bed): _____ *Direction when facing downstream Evidence of Erosion: <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Sloughing <input type="checkbox"/> Undercutting <input type="checkbox"/> Impact from Cattle <input type="checkbox"/> Other: _____	Left Bank*	Right Bank*	Height (ft): <u>1/2</u>	Height (ft): <u>1/2</u>	Slope: <input type="checkbox"/> 0-30° (4:1)	Slope: <input type="checkbox"/> 0-30° (4:1)	<input type="checkbox"/> 31-45° (3:1)	<input type="checkbox"/> 31-45° (3:1)	<input type="checkbox"/> 46-60° (2:1)	<input type="checkbox"/> 46-60° (2:1)	<input checked="" type="checkbox"/> 61-90° (1:1)	<input checked="" type="checkbox"/> 61-90° (1:1)	Riparian Vegetation <input checked="" type="checkbox"/> yes, list ID: HB- _____ <input type="checkbox"/> no If yes, list: <u>white oak, red oak, red maple, green ash, silky dogwood, multiflora rose, barberry</u> Width of riparian corridor (ft): _____ Stream Fringe (5' or less including both banks and does not meet wetland criteria) <input type="checkbox"/> yes, width (ft): _____ <input checked="" type="checkbox"/> no If yes, list : _____ Aquatic Vegetation <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If yes, list: _____															
Left Bank*	Right Bank*																											
Height (ft): <u>1/2</u>	Height (ft): <u>1/2</u>																											
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<input checked="" type="checkbox"/> 61-90° (1:1)	<input checked="" type="checkbox"/> 61-90° (1:1)																											
NOTES for HIGH BANK for Construction (if present) Width (ft) Highest Bank to Highest Bank: _____ Highest Left Bank Height*: _____ Highest Left Bank Slope*: _____ Highest Right Bank Height*: _____ Highest Right Bank Slope*: _____ *Direction when facing downstream	ASSOCIATED SPECIES Aquatic Organisms <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If yes, list: Riparian/Terrestrial Organisms <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If yes, list: Stream has potential for fish presence <input type="checkbox"/> yes <input checked="" type="checkbox"/> no T&E Species <input type="checkbox"/> yes, list ID: WL/VG- _____ <input checked="" type="checkbox"/> no																											
OHWM Criteria – Ordinary High Water Mark	Geometry: <input type="checkbox"/> Meandering <input checked="" type="checkbox"/> Relatively Straight																											
<input type="checkbox"/> clear, natural line impressed on bank <input type="checkbox"/> changes in character of soil <input type="checkbox"/> shelving <input type="checkbox"/> vegetation matted down, bent or absent <input type="checkbox"/> leaf litter disturbed or washed away <input type="checkbox"/> sediment deposition <input type="checkbox"/> water staining <input type="checkbox"/> presence of litter and debris <input checked="" type="checkbox"/> destruction of terrestrial vegetation <input type="checkbox"/> presence of wrack line <input type="checkbox"/> sediment sorting <input type="checkbox"/> scour <input type="checkbox"/> abrupt change in plant community <input type="checkbox"/> other (list): _____ Discontinuous OHWM: <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Presence of: <input checked="" type="checkbox"/> run <input type="checkbox"/> pools <input checked="" type="checkbox"/> riffles Explain: Is the stream/tributary: <input type="checkbox"/> natural <input type="checkbox"/> manmade – Explain: _____ <input type="checkbox"/> man-altered – Explain: _____ NOTES: Is hydrologically connected to wetland W2-T2-607A.																											

ATTACHMENT B
WETLAND AND WATER RESOURCE SUMMARY TABLES

WETLAND RESOURCE SUMMARY TABLE

**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO)
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607A
WETLAND RESOURCE SUMMARY TABLE**

Wetland ID	Dataform ID	Cowardin Code	Resource Size			Open-Ended Boundary	Waters Types	Latitude (dd nad83)	Longitude (dd nad83)	Chapter 105.17 Wetland Designation	Watershed Information			Wetland Description
			Length (feet)	Width (feet)	Area (sq. ft.)						Watershed Name	PA Code Chapter 93 Water Quality Designated Use	PA Code Chapter 93 Water Quality Existing Use	
W1-T1-CS607A	W1-T1-CS607A-1A	PEM	8	16	79	No	ISOLATE	41.300257	-76.220326	Other	Lick Branch	HQ-CWF, MF	-	Sphagnum moss was observed.
W2-T1-CS607A	W2-T1-CS607A-1A	PEM	119	36	5,198	No	ISOLATE	41.298862	-76.224436	EV	Lick Branch	HQ-CWF, MF	-	A depressional wetland located along the side of an existing drive-way.
W1-T2-CS607A	W1-T2-CS607A-1A	PEM	86	28	2,293	No	ISOLATE	41.298947	-76.225016	Other	Lick Branch	HQ-CWF, MF	-	Located in a field between wetlands W2-T2-CS607A and W2-T1-CS607A
W2-T2-CS607A	W2-T2-CS607A-1A	PEM	448	102	33,049	Yes	RPWWD	41.298632	-76.225689	EV	Lick Branch	HQ-CWF, MF	-	A PEM/PFO wetland complex that is located within a field. S1-T2 flows throughout the wetland. Evidence of grazing was present within the PEM portions of the wetland.
	W2-T2-CS607A-1C	PFO	263	185	43,760	Yes	RPWWD	41.298034	-76.224574					
W1-T3-CS607A	W1-T3-CS607A-1A	PEM	123	40	4,238	No	ISOLATE	41.299025	-76.224094	Other	Phillips Creek	HQ-CWF, MF	-	Located in a field along an existing farm road.
W2-T3-CS607A	W2-T3-CS607-1A	PEM	96	464	69,952	Yes	DELINEATE	41.299797	-76.223577	EV	Phillips Creek	HQ-CWF, MF	-	Located in a hayfield along an existing road and above an existing pipeline ROW. Water conveys across the existing ROW into the PSS portion of the wetland. This wetland is hydrologically connected to wetland W3-T4-CS607A.
	W2-T3-CS607-1B	PSS	30	25	980		DELINEATE	41.300267	-76.223373					
W3-T3-CS607A	W3-T3-CS607A-1A	PEM	12	58	436	No	ISOLATE	41.300071	-76.221980	Other	Lick Branch	HQ-CWF, MF	-	Located within an existing pipeline ROW.
W1-T4-CS607A	W1-T4-CS607A-1A	PEM	198	200	37,317	Yes	ISOLATE	41.300710	-76.225400	Other	Phillips Creek	HQ-CWF, MF	-	Located within a hayfield. Wheel ruts were observed within the wetland.
W2-T4-CS607A	W2-T4-CS607A-1A	PEM	15	31	371	No	ISOLATE	41.300398	-76.224627	Other	Phillips Creek	HQ-CWF, MF	-	Located within a hayfield.
W3-T4-CS607A	W3-T4-CS607A-1A	PEM	200	148	30,735	Yes	DELINEATE	41.300111	-76.224509	Other	Phillips Creek	HQ-CWF, MF	-	Located within a hayfield along an existing road. This wetland is hydrologically connected to wetland W2-T3-CS607A.
Total PEM Wetlands					183,668									
Total PSS Wetlands					980									
Total PFO Wetlands					43,760									
TOTAL					228,408									

WATERCOURSE RESOURCE SUMMARY TABLE

**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO)
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607A
WATERCOURSE RESOURCE SUMMARY TABLE**

Watercourse ID	Stream Name	Type	Resource Size			Floodway - FEMA & 50ft (ac)	FEMA Floodplain (ac)	Open-Ended Boundary	Waters Types	Latitude (dd nad83)	Longitude (dd nad83)	Watershed Name	PA Code Chapter 93 Water Quality		PFBC Classification			Watercourse Description
			Length (feet)	Width (feet)	Area (sq. ft.)								PA Code Chapter 93 Water Quality Designated Use	PA Code Chapter 93 Water Quality Existing Use	Stocked Trout	Naturally Reproducing Trout	Class A Wild Trout	
S1-T2-CS607A	UNT to Lick Branch	Intermittent	9,699	1.5	14,548	6.48	-	Yes	RPW	41.297606	-76.222571	Lick Branch	HQ-CWF, MF	-	N	Y	Y	0-6" deep. Impacted by horses. Culvert present. Starts at W2-T2-CS607A and flows through the wetland. Hydrologically connected to S1-T3, S2-T3, S3-T3, S5-T2, S3-T2(CS607A)
S2-T2-CS607A	UNT to Lick Branch	Ephemeral	298	1	298		-	Yes	NRPW	41.297342	-76.220372	Lick Branch	HQ-CWF, MF	-	N	Y	Y	No water present at the time of survey. No erosion was noted. Hydrologically connected to W2-T2-CS607A
S3-T2-CS607A	UNT to Lick Branch	Intermittent	2,849	2	5,697		-	Yes	RPW	41.296816	-76.221194	Lick Branch	HQ-CWF, MF	-	N	Y	Y	0-6" water depth, No erosion noted. Channel braided. Hydrologically connected to W2-T2-CS607A
S4-T2-CS607A	UNT to Lick Branch	Intermittent	484	2	968		-	No	RPW	41.296791	-76.221428	Lick Branch	HQ-CWF, MF	-	N	Y	Y	0-6" water depth, No erosion noted. Channel braided. Hydrologically connected to W2-T2-607A
S5-T2-CS607A	UNT to Lick Branch	Intermittent	597	1	597		-	No	RPW	41.296805	-76.220669	Lick Branch	HQ-CWF, MF	-	N	Y	Y	Hydrologically connected to wetland W2-T2-CS607A
S6-T2-CS607A	UNT to Lick Branch	Intermittent	913	1	913		-	No	RPW	41.29673	-76.221132	Lick Branch	HQ-CWF, MF	-	N	Y	Y	Hydrologically connected to wetland W2-T2-CS607A
S1-T3-CS607A	UNT to Lick Branch	Intermittent	515	3	1,544		-	No	RPW	41.297157	-76.221847	Lick Branch	HQ-CWF, MF	-	N	Y	Y	0-6" water depth, No erosion noted.
S2-T3-CS607A	UNT to Lick Branch	Intermittent	178	3	535		-	No	RPW	41.297424	-76.221854	Lick Branch	HQ-CWF, MF	-	N	Y	Y	0-6" water depth, No erosion noted.
S3-T3-CS607A	UNT to Lick Branch	Intermittent	582	3	1,745		-	No	RPW	41.297275	-76.22147	Lick Branch	HQ-CWF, MF	-	N	Y	Y	0-6" water depth, No erosion noted.
Total Intermittent Channels					26,547													
Total Ephemeral Channels					298													
TOTAL					26,845													

ATTACHMENT C
PENNSYLVANIA LEVEL 2 RAPID ASSESSMENT REPORT



TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

ATTACHMENT C

COMPRESSOR STATION 607A LEVEL 2 RAPID ASSESSMENT REPORT
FAIRMOUNT TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

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Narrative

- 1.0 Introduction
- 2.0 Methodology
 - 2.1 Wetland Condition Assessment
 - 2.2 Stream Condition Assessment
- 3.0 Results
 - 3.1 Wetlands
 - 3.2 Streams
- 4.0 Conclusions
- 5.0 References

Attachments

- A Assessment Forms
- B Figures

TRANSCONTINENTAL GAS PIPELINE COMPANY, LLC
LEIDY SOUTH PROJECT

ATTACHMENT C

COMPRESSOR STATION 607A LEVEL 2 RAPID ASSESSMENT REPORT
FAIRMOUNT TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

1.0 INTRODUCTION

WHM Consulting, Inc. (WHM) was retained by Transcontinental Gas Pipe Line Company, LLC (Williams) to conduct a Functional Assessment of wetland and water resources associated with the Leidy South Project – Compressor Station 607A Loop (Project) located in Fairmount Township, Luzerne County, Pennsylvania, on the Sweet Valley, Pennsylvania, USGS 7.5 Minute Quadrangle. The purpose of the Functional Assessment was to evaluate the condition of onsite aquatic resources that will be impacted as a result of the Project in order to meet the requirements as outlined in 25 Pa. Code Chapter 105 regulations. This report provides information on the methodology, data collected, field findings, and conclusions pertaining to the condition of wetland and water resources to be impacted. The Functional Assessment was conducted by WHM from March 2019 through August 2019.

2.0 METHODOLOGY

The Functional Assessment was conducted in accordance with the procedures and technical guidelines outlined in the Pennsylvania Department of Environmental Protection's (PADEP) Level 2 Rapid Assessment Protocols. A desktop analysis was conducted to determine assessment areas (AA) and zones of influence (ZOI). Field data was collected, and the desktop and field data were used in conjunction to arrive at the overall condition scores. The observations made represent the assessor's best professional judgement exercised with the guidance of the Rapid Assessment Protocols.

2.1 WETLAND CONDITION ASSESSMENT

The Functional Assessment of the onsite wetlands was conducted in accordance with the guidelines and procedures outlined in the *Pennsylvania Wetland Condition Level 2 Rapid Assessment Protocol* (Wetland Protocol). Aerial and satellite imagery combined with ArcGIS were utilized to determine the AA. The AA was determined based on the following criteria as outlined in the Wetland Protocol:

1. The AA is comprised of the entire wetland if the wetland is less than or equal to 1.0 acre in size.
2. If the wetland is larger than 1.0 acre in size and the impact area is less than 1.0 acre, the AA will be established around the impact area until the AA is 1.0 acre in size. In general, the AA will be a representative sampling of the entire wetland while still encompassing the impact area.
3. The AA is comprised of the entire wetland impact area if the proposed impact is greater than 1.0 acre in size.

Once the AA has been established, the wetland Zone of Influence (ZOI) is determined and is comprised of the land extending 300 ft. beyond the perimeter of the AA. The AA or ZOI is then assessed using the six condition indices outlined in Table 1. As noted in the table, two sub-indices are utilized to evaluate Vegetation Condition and Water Quality Stressors.

Index	Assessment Method	Zone Assessed
Wetland ZOI Condition	Desktop Analysis of Aerial Imagery Field Observation	ZOI
Roadbed Presence Condition	Desktop Analysis of Aerial Imagery Field Observation	ZOI
Vegetation Condition		
<i>Invasive Species Presence Sub-Index</i>	Field Observation	AA
<i>Vegetation Stressor Presence Sub-Index</i>	Field Observation	AA
Hydrologic Modification Stressor	Field Observation	AA
Sediment Stressor	Field Observation	AA
Water Quality Stressor		
<i>Eutrophication Stressor Presence Sub-Index</i>	Field Observation	AA
<i>Contaminant/Toxicity Stressor Presence Sub-Index</i>	Field Observation	AA

Table 1. Wetland Condition Indices.

According to the Wetland Protocol, the Wetland Condition Index Form (WCIF) and three supplemental worksheets (Roadbed Worksheet, Invasive Presence Worksheet, and Stressor Worksheet) are used to calculate the Overall Condition Index for the wetland being assessed. Using the WCIF, each of the six indices discussed in Table 1 are scored on a scale of 1 to 20, with 20 being the optimal condition. The Overall Condition Index is calculated by summing the six main indices and then dividing by 6. In general, the closer a score is to one, the better the condition the wetland is.

2.2 RIVERINE CONDITION ASSESSMENT

The Functional Assessment of onsite perennial and intermittent streams was conducted in accordance with the guidelines and procedures outlined in the *Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol* (Riverine Protocol). Aerial and satellite imagery and ArcGIS were utilized to determine the upper and lower boundaries of the AA. The boundaries of the AA were determined based on all or some of the following criteria as outlined in the Riverine Protocol:

1. The upstream influence of backwater projected as part of the hydrologic and hydraulic (H&H) analysis and application of the same distance downstream; or
2. 20 times the channel width at bankfull stage upstream and downstream; or
3. 100 feet upstream and downstream of the proposed location, whichever is greater.

Once the upper and lower boundaries of the AA were established, the Riparian Vegetation and Riparian ZOI were established. The Riparian Vegetation Areas was established using the following the criteria as outlined in the Riverine Protocol. The following criteria are listed in order of the method that is preferred by PADEP:

1. Hydrologic modeling analysis to determine the 100-year storm event; or
2. 100-year Federal Emergency Management Agency (FEMA) floodplain mapping; or
3. In FEMA unmapped areas, the flood prone area width is estimated by determining the elevation that corresponds to twice the maximum depth of the bankfull channel as taken from the established bankfull stage; or
4. In FEMA unmapped areas where hydrologic modeling analysis and stream cross-section data is not available, estimate the flood prone area width by extending 100 feet from the stream bank towards the valley margins. Best professional judgement is to be utilized by the assessor if one or more of the valley margins are less than 100 feet from the bank and adjust boundaries.

In areas where a mapped FEMA floodplain was available, ArcGIS was used to determine the boundary. In all instances, best professional judgement was used to define the Riparian Vegetation areas in accordance with the criteria provided above.

Once the Riparian Vegetation Areas were established, Riparian ZOI boundaries were determined by extending 100 feet landward from the Riparian Vegetation Area boundaries on each side of the stream and along the entire length of the Riparian Vegetation Area. If assessing the uppermost headwaters of a watercourse, the area 100 feet above the watercourse may be included in the Riparian Zone boundary.

In accordance with the Riverine Protocol, the Riparian ZOI is not evaluated as part of the condition assessment for perennial streams with a drainage area greater than 100 square miles or less than 2,000 square miles. Likewise, the Instream Habitat condition will not be evaluated for intermittent streams. Neither of the aforementioned indices will be included in the assessment when evaluating those stream types unless deemed necessary by PADEP.

Once the AA and ZOI have been determined, the riverine condition is assessed using the five condition indices outlined in Table 2. As noted in the table, not all indices are used to determine the overall condition of the channel being evaluated, unless deemed necessary by PADEP.

Index	Watercourse Classification			Assessment Method	Zone Assessed
	Intermittent	Perennial (Drainage area ≤ 100 sq. miles)	Perennial (Drainage area >100 sq. miles but ≤ 2,000 sq. miles)		
Channel/Floodplain Condition	Yes	Yes	Yes	Field Observations	AA
Riparian Vegetation Condition	Yes	Yes	Yes	Desktop Analysis of Aerial Imagery Field Observations	AA Riparian Vegetation Area
Riparian Zone of Influence Condition	Yes	Yes	No	Desktop Analysis of Aerial Imagery Field Observations	Riparian ZOI
Instream Habitat Condition	No	Yes	Yes	Field Observations	AA
Channel Alteration Condition	Yes	Yes	Yes	Field Observations	AA

Table 2. Indices to be determined based on watercourse classification.

According to the Riverine Protocol, the Riverine Assessment Form 1 (RAF1) is to be used to calculate the Riverine Condition Index for the stream being assessed. Using RAF1, each of the six indices discussed in Table 2 are scored on a scale of 1 to 20, with 20 being the optimal condition. When calculating the Riparian Vegetation Condition Index and the Riparian ZOI Condition Index, the left and right sides are scored, summed together, and then divided by 2 for the overall score for each.

The indices evaluated in Table 2 are weighted equally when calculating the final score for the Riverine Condition Index (RCI). Therefore, to calculate RCI, each index score is added together and then divided by the number of indices evaluated. For example, when calculating RCI for an intermittent stream, the scores for the four indices assessed would be added together and divided by 4. In general, the closer the score is to 1, the better the condition of the stream being assessed.

3.0 RESULTS

Four (4) wetlands were evaluated during the assessment. No streams were assessed, because no streams are being impacted. Attachment A- Assessment Forms includes data collected for the wetlands and watercourses at the site. Attachment B - Figures includes mapping of the resources evaluated during the assessment and their respective AA and ZOI boundaries. The following provides a descriptive summary of the data collected during the Functional Assessment.

3.1 WETLANDS

Overall four (4) wetlands were assessed for the purposes of the Functional Assessment. Due to proximity, wetlands were combined as applicable, which resulted in a total of two (2) assessment areas. In general, the wetland ZOIs were comprised of forests, agricultural fields, driveways, an existing pipeline, and other stream and wetland features.

Leidy South - Compressor Station 607A Project - Wetland Condition Assessment Summary Table									
Assessment Area Number	Wetland ID	Assessment Area (Acres)	ZOI Condition Index	Roadbed Presence Index	Vegetation Condition Index	Hydrologic Modification Index	Sediment Stressor Index	Water Quality Stressor Index	Overall Condition Index
1	W2-T3-CS607A, W2-T2-CS607A, & W2-T1-CS607A	1.00	0.55	0.18	0.50	0.90	0.95	1.00	0.68
2	W3-T3-CS607A	0.10	0.68	0.85	0.43	0.85	0.95	1.00	0.79

Table 3 – Wetland Condition Assessment Summary Table

Functional assessments resulted in Overall Condition Index scores ranged from 0.68 to 0.79 for the two (2) wetland functional assessments. See Attachment A (Assessment Forms) and Attachment B (Figures) for more detail.

3.2 STREAMS

No streams were proposed to be impacted by the Project, so no stream assessments were completed.

4.0 CONCLUSIONS

Four (4) wetlands were evaluated during the Functional Assessment. Because some of the wetlands were located within the same area and possessed similar characteristics and habitat, they were grouped together in one assessment area. This resulted in two (2) wetland functional assessments being completed. The Overall Condition Index for wetlands ranged from 0.68 to 0.79, indicating that wetlands for the project were of marginal to high quality.

5.0 REFERENCES

1. Pennsylvania Code. 2017. <http://www.pacode.com/secure/data/025/025toc.html>.
2. Pennsylvania Department of Environmental Protection (PADEP). 2017. Pennsylvania Riverine Condition Level 2 Rapid Assessment Protocol. Version 2.0. Document Number 310-2137-003.
3. Pennsylvania Department of Environmental Protection (PADEP). 2017. Pennsylvania Wetland Condition Level 2 Rapid Assessment Protocol. Version 2.0. Document Number 310-2137-002.
4. United States Geological Survey (USGS). Topographic Quadrangle 7.5 minute Series, Sweet Valley, PA.

ATTACHMENT A
ASSESSMENT FORMS

Wetland Condition Assessment Form

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

Pennsylvania Department of Environmental Protection

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

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
Williams-18-204	Leidy South - Compressor Station 607A	8/6/2019	0.03	1	1.00	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
Charly Bloom		41.299797, 41.2986, 41.298862	-76.2235, -76.225689, -76.224436	W2-T3-CS607A, W2-T2-CS607A, W2-T1-CS607A		

General Comments:

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20												
	Optimal				Suboptimal				Marginal				Poor																
ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.				High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.								
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.55								
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.											Total Score = SUM(%Areas*Scores)																		
2. Estimate the % area within each condition category. Calculators are provided for you below.																													
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																													
Scoring:	Condition Category:	Optimal				Suboptimal				Marginal				Poor				Total Score:											
	% ZOI Area:	9%				32%				2%				51%					6%				0%						
	Score:	19				17				13				7					1				0						
Total Sub-score:		1.71				5.44				0.26				3.57				0.06				0.00				11.04			

Comments:

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20														
	Optimal				Suboptimal				Marginal				Poor																		
High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0.18										
											Condition Score					Weighting						Sub-Scores									
											a. Roadbed 0-100:					3						* (0.67)					2				
											b. Roadbed 100-300:					5						* (0.33)					2				
											Total Score:										4										

Comments:

Wetland Condition Assessment Form

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

Pennsylvania Department of Environmental Protection

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

3. Vegetation Condition Index

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

Comments: W2-T3-CS607A - mivi (15%), romu (40%), beth (10%) W2-T2-CS607A - romu (5%), potr (20%) W2-T1-CS607A - N/A

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

Comments:

a. Invasive Sub-Score:	6	Total Score	20	
b. Vegetation Sub-Score:	14			0.50

4. Hydrologic Modification Index

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

Comments:

Score:	18			0.90
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5. Sediment Stressor Index

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

Comments:

Score:	19			0.95
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6. Water Quality Stressor Index

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

Comments:

a. Eutrophication Score	20	Total Score:	1.00	
b. Contaminant Score	20		40	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index:

0.68

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)				
Leidy South - Compressor 607A			8/6/2019	Charly Bloom				
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
W2-T3-CS607A, W2-T2-CS607A, W2-T1-CS607A	1	41.299797, 41.298600, 41.298862	-76.2235, -76.225689, -76.224436					
<p>Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.</p>								
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.	1	2	2	100-300 ft.	2	2	4
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.	1	1	1	100-300 ft.	1	1	1
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.		1, 2 or 4		100-300 ft.		1, 2 or 4	
Total Scores:	0-100 ft.		3		100-300 ft.		5	
Road Comments:								

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		2/4/2017		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X			
Moderate livestock grazing (within one year)				X
Crops (annual row crops, within one year)				X
Selective tree harvesting/cutting (>50% removal, within 5 years)				X
Right-of-way clearing (mechanical or chemical)	X			
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)				X
Removal of woody debris				X
Aquatic weed control (mechanical or herbicide)				X
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)				X
Plantation (conversion from typical natural tree species, including orchards)				X
Other:				X
Total Number:			2	
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods				X
Dike/weir/dam				X
Filling/grading				X
Dredging/excavation				X
Stormwater inputs (culvert or similar concentrated urban runoff)				X
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *				X
Stream alteration (channelization or incision)				X
Other:				
Total Number:			1	
Sedimentation				
Sediment deposits/plumes				X
Eroding banks/slopes				X
Active construction (earth disturbance for development)				X
Active plowing (plowing for crop planting in past year)				X
Intensive livestock grazing (in one year, ground is >50% bare)				X
Active selective forestry harvesting (within one year)				X
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)				X
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)				X
Other:				X
Total Number:			0	
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.				X
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.				X
Heavy or moderately heavy formation of algal mats				X
Other:				X
Total Number:			0	
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)				X
Obvious spills, discharges, plumes, odors, etc.				X
Acidic drainages (mined sites, quarries, road cuts)				X
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites				X
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)				X
Fish or wildlife kills or obvious disease or abnormalities observed				X
Excessive garbage/dumping				X
Other:				X
Total Number:			0	
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

Wetland Condition Assessment Form

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

Pennsylvania Department of Environmental Protection

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

Project #	Project Name	Date	Proposed Impact Size (acres)	AA #	AA Size (acres)	
William-18-204	Leidy South - Compressor Station 607A	8/6/2019	0.01	2	.01	
Name(s) of Evaluator(s)		Lat (dd)	Long (dd)	Notes:		
Charly Bloom		41.300071	-76.221980	W3-T3-CS607A		

General Comments:

1. Wetland Zone of Influence Condition Index

Wetland Zone of Influence (300 foot area around AA perimeter)	Condition Category																CI = Total Score/20							
	Optimal				Suboptimal				Marginal				Poor											
ZOI area vegetation consists of a tree stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.	High Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.				Low Suboptimal: ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.				High Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.				Low Marginal: ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.				High Poor: ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.				Low Poor: ZOI area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.			
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1				
1. Identify all applicable Condition Category areas within the wetland zone of influence using the descriptors above.											Total Score = SUM(%Areas*Scores)													
2. Estimate the % area within each condition category. Calculators are provided for you below.																								
3. Enter the % ZOI Area in decimal form (0.00) and Score for each category in the blocks below.																								
Scoring:		Condition Category:		Optimal		Suboptimal		Marginal												Total Score:				
		% ZOI Area:		64%		2%		34%														0.68		
		Score:		17		12		7																
		Total Sub-score:		10.88		0.24		2.38		0.00		0.00		0.00										

Comments:

2. Roadbed Presence Index

a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	Condition Categories																CI = Total Score/20														
	Optimal				Suboptimal				Marginal				Poor																		
High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.				High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 2 but equal to or less than 4.				Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 4 but less than or equal to 6.				High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 6 but less than or equal to 8.				Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 8 but less than or equal to 10.				High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12.				Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1											
											Condition Score					Weighting					Sub-Scores										
											a. Roadbed 0-100:					17					* (0.67)					11					
											b. Roadbed 100-300:					17					* (0.33)					6					
																Total Score:					17					0.85					

Comments:

Wetland Condition Assessment Form

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

Pennsylvania Department of Environmental Protection

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

3. Vegetation Condition Index

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

Comments: mivi, Japanese Stiltgrass (*Microstegium vimineum*) (FAC) 50%

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

Comments:

a. Invasive Sub-Score:	3	Total Score	0.43
b. Vegetation Sub-Score:	14	17	

4. Hydrologic Modification Index

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

Comments:

Score:	17	0.85
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5. Sediment Stressor Index

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

Comments:

Score:	19	0.95
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6. Water Quality Stressor Index

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

Comments:

	Condition Category															CI = Total Score/40				
	Optimal					Suboptimal					Marginal						Poor			
b. Contaminant / Toxicity Stressor Presence	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicity stressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.				
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Comments:

a. Eutrophication Score	20	Total Score:	1.00
b. Contaminant Score	20	40	

Overall Wetland Level 2 Condition Score: Sum all six of the Condition Indexes and divide by 6 to calculate the overall condition score.

Overall Condition Index: 0.79

Pennsylvania Wetland Condition Level 2 Rapid Assessment

(Document No. 310-2137-002)

Pennsylvania Department of Environmental Protection

Roadbed Worksheet

Project Name / Identifier			Date	Name(s) of Evaluator(s)
Leidy South - Compressor Station 607A			8/6/2019	Charly Bloom
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:
		41.300071	-76.221980	W3-T3CS607A

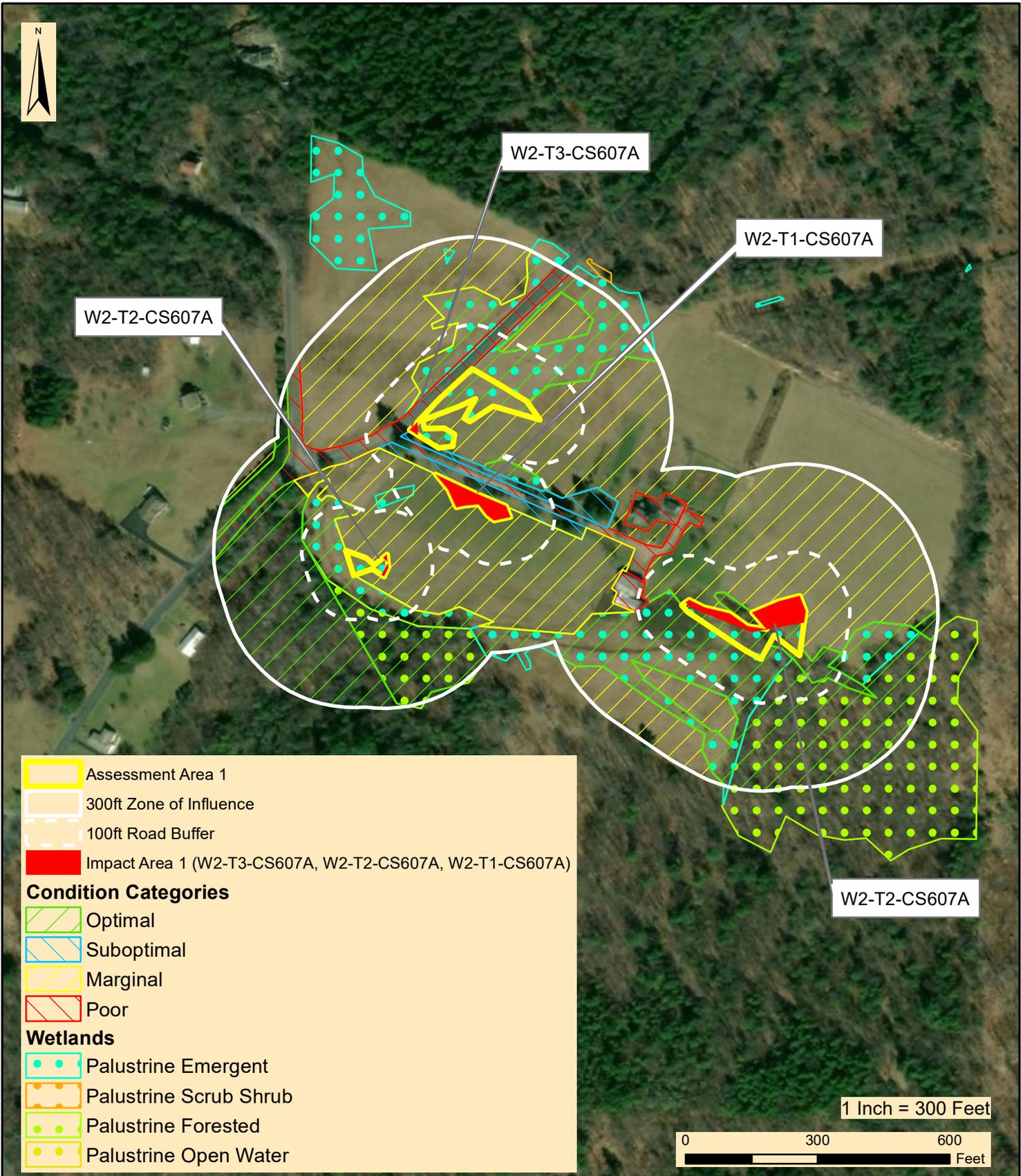
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.

Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
≥ 4 Lane Paved	0-100 ft.		4	0	100-300 ft.		4	0
2 Lane Paved	0-100 ft.		2	0	100-300 ft.		2	0
1 Lane Paved	0-100 ft.		1	0	100-300 ft.		1	0
Gravel Road	0-100 ft.		1	0	100-300 ft.		1	0
Dirt Road	0-100 ft.		2	0	100-300 ft.		2	0
Railroad	0-100 ft.		2	0	100-300 ft.		2	0
Other Roadbeds	0-100 ft.	1	1, 2 or 4	1	100-300 ft.	1	1, 2 or 4	1
Total Scores:	0-100 ft.	1			100-300 ft.	1		

Road Comments:

Pennsylvania Wetland Condition Level 2 Rapid Assessment (Document No. 310-2137-002) Pennsylvania Department of Environmental Protection STRESSOR WORKSHEET		2/4/2017		
		Occurrence in AA		
		Y	#'s	N
Vegetation Alteration				
Mowing	X		X	
Moderate livestock grazing (within one year)			X	
Crops (annual row crops, within one year)			X	
Selective tree harvesting/cutting (>50% removal, within 5 years)			X	
Right-of-way clearing (mechanical or chemical)	X	1		
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			X	
Removal of woody debris			X	
Aquatic weed control (mechanical or herbicide)			X	
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			X	
Plantation (conversion from typical natural tree species, including orchards)			X	
Other:			X	
Total Number:			2	
Hydrologic Modification				
Ditching, tile draining, or other dewatering methods			X	
Dike/weir/dam			X	
Filling/grading			X	
Dredging/excavation			X	
Stormwater inputs (culvert or similar concentrated urban runoff)			X	
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)	X			
Dead or dying trees (trunks still standing) *			X	
Stream alteration (channelization or incision)			X	
Other:			X	
Total Number:			1	
Sedimentation				
Sediment deposits/plumes			X	
Eroding banks/slopes			X	
Active construction (earth disturbance for development)			X	
Active plowing (plowing for crop planting in past year)			X	
Intensive livestock grazing (in one year, ground is >50% bare)			X	
Active selective forestry harvesting (within one year)			X	
Active forest harvesting (within two years, includes roads, borrow areas, pads, etc.)			X	
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges)			X	
Other:			X	
Total Number:			0	
Eutrophication				
Direct discharges from agricultural feedlots, manure pits, etc.			X	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			X	
Heavy or moderately heavy formation of algal mats			X	
Other:			X	
Total Number:			0	
Contaminant/Toxicity				
Severe vegetation stress (source unknown or suspected)			X	
Obvious spills, discharges, plumes, odors, etc.			X	
Acidic drainages (mined sites, quarries, road cuts)			X	
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			X	
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			X	
Fish or wildlife kills or obvious disease or abnormalities observed			X	
Excessive garbage/dumping			X	
Other:			X	
Total Number:			0	
* Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.				

ATTACHMENT B
FIGURES



 Assessment Area 1
 300ft Zone of Influence
 100ft Road Buffer
 Impact Area 1 (W2-T3-CS607A, W2-T2-CS607A, W2-T1-CS607A)

Condition Categories

 Optimal
 Suboptimal
 Marginal
 Poor

Wetlands

 Palustrine Emergent
 Palustrine Scrub Shrub
 Palustrine Forested
 Palustrine Open Water

1 Inch = 300 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

WHM
 designs, permits, resolutions
consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPELINE COMPANY, LLC
 LEIDY SOUTH PROJECT - COMPRESSOR STATION 607A
WETLAND FUNCTIONAL ASSESSMENT -
ASSESSMENT AREA 1
 (W2-T3-CS607A, W2-T2-CS607A, W2-T1-CS607A)

Date:	08/07/2019
WHM Drawing Number:	WILLIAMS204A001
Drawn By:	CSB
Figure Number:	1



W3-T3-CS607A



Assessment Area 2 (W3-T3-CS607A)
 300' Zone of Influence
 100' Road Buffer
 Impact Area
Condition Categories
 Optimal
 Suboptimal
 Marginal
Wetlands
 Palustrine Emergent
 Palustrine Scrub Shrub
 Palustrine Forested
 Palustrine Open Water

1 Inch = 150 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



designs, permits, resolutions
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 2525 Green Tech Drive, Suite B,
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TRANSCONTINENTAL GAS PIPELINE COMPANY, LLC
 LEIDY SOUTH PROJECT - COMPRESSOR STATION 607A
WETLAND FUNCTIONAL ASSESSMENT -
ASSESSMENT AREA 2 (W3-T3-CS607A)

FAIRMONT TOWNSHIP
LUZERNE COUNTY
PENNSYLVANIA

Date:	08/07/2019
WHM Drawing Number:	WILLIAMS204A002
Drawn By:	CSB
Figure Number:	2

APPENDIX 2-3
PNDI RECEIPT AND CORRESPONDENCES



Transcontinental Gas Pipe Line Company, LLC

Appendix S2 - 3

PNDI Receipts and Correspondences

Leidy South Project

August 2019
(Revised May 2020)

*Leidy South Project
PA DEP Section 401 Water Quality Certification Application
Transcontinental Gas Pipe Line Company, LLC*

PNDI RECEIPT

1. PROJECT INFORMATION

Project Name: **Leidy South Project**

Date of Review: **5/7/2020 03:48:25 PM**

Project Category: **Energy Storage, Production, and Transfer, Energy Transfer, Other**

Project Area: **407.34 acres**

County(s): **Clinton; Columbia; Luzerne; Lycoming; Schuylkill; Wyoming**

Watersheds HUC 8: **Lower Susquehanna-Penns; Lower West Branch Susquehanna; Middle West Branch Susquehanna; Upper Susquehanna-Lackawanna; Upper Susquehanna-Tunkhannock**

Watersheds HUC 12: **Beaver Run; Drury Run; Fishing Creek-Susquehanna River; Hall Run-West Branch Susquehanna River; Hans Yost Creek-Deep Creek; Headwaters Huntington Creek; Kline Hollow Run-Little Fishing Creek; Left Branch Young Womans Creek; Lower South Branch Tunkhannock Creek; Middle Kettle Creek; Mud Run-Green Creek; Paddy Run; Rattlesnake Run-West Branch Susquehanna River; West Creek; Young Womans Creek-West Branch Susquehanna River**

Decimal Degrees: **41.412205, -77.798676**

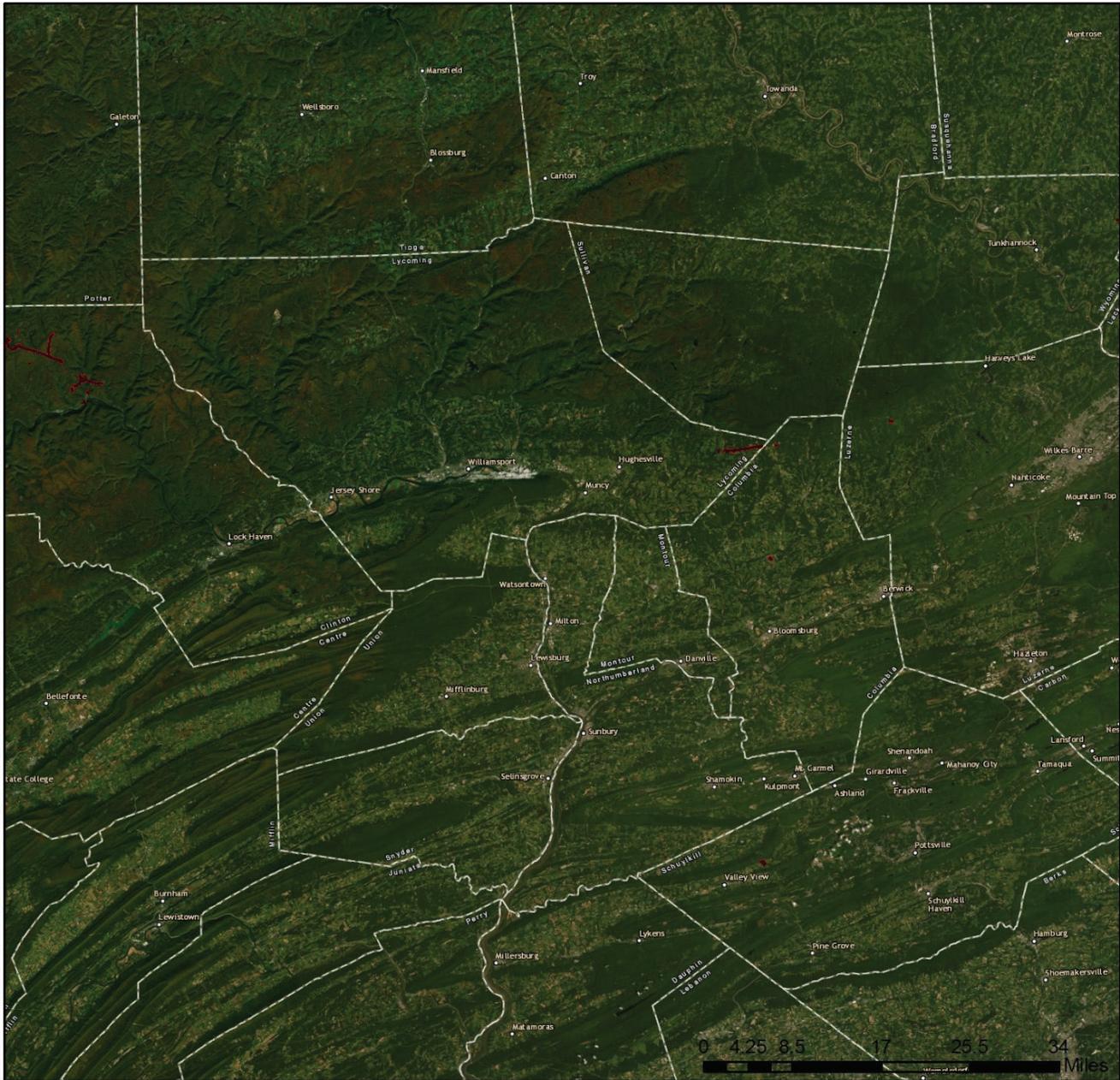
Degrees Minutes Seconds: **41° 24' 43.9387" N, 77° 47' 55.2322" W**

2. SEARCH RESULTS - LARGE PROJECT

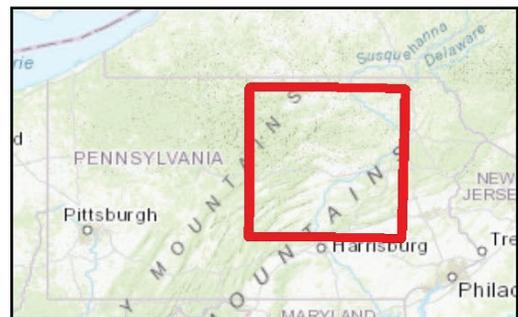
Agency	Results	Response
PA Game Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Department of Conservation and Natural Resources	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response

Large Project. The project area is greater than 10 miles and/or 5,165 acres and therefore is categorized as a Large Project, and is not analyzed by the PNDI tool. Coordination is therefore required with the four jurisdictional agencies to determine if potential impacts to threatened and endangered and/or special concern species and resources within the project area. Please see the DEP Information section of the receipt if a PA Department of Environmental Protection Permit is required.

Leidy South Project

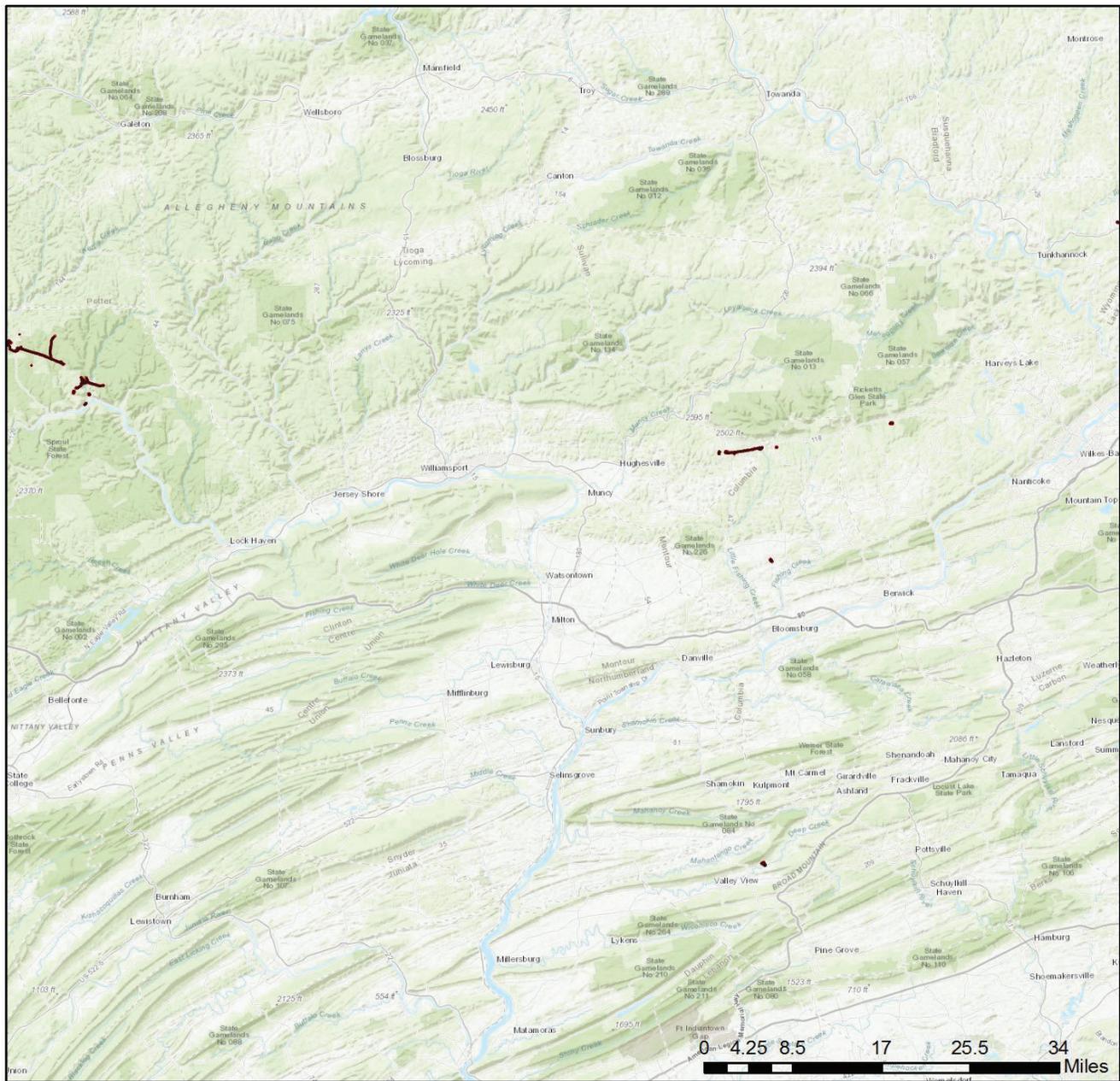


- Project Boundary
- Buffered Project Boundary



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

Leidy South Project



- 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:

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

PA Department of Conservation and Natural Resources

RESPONSE:

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

PA Fish and Boat Commission

RESPONSE:

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

U.S. Fish and Wildlife Service

RESPONSE:

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

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).

***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:

___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

___ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

___ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

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

5. ADDITIONAL INFORMATION

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

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

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

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

PA Fish and Boat Commission

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

U.S. Fish and Wildlife Service

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

PA Game Commission

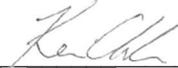
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: Kevin M. Clark
Company/Business Name: WHM Consulting, LLC
Address: 2525 Green Tech Drive, Suite B
City, State, Zip: State College, PA 16803
Phone: (814) 689-1650 Fax: ()
Email: kevinc@whmgroup.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

05/07/2020

date

*Leidy South Project
PA DEP Section 401 Water Quality Certification Application
Transcontinental Gas Pipe Line Company, LLC*

**PENNSYLVANIA DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES**

BUREAU OF FORESTRY

June 3, 2019

PNDI Number: 670193

Version: Final_1; 10/31/18

Kevin Clark

WHM Consulting, Inc.

2525 Green Tech Dr., Suite B

State College, PA 16803

Email: kevinc@whmgroup.com (hard copy will not follow)

Re: Leidy South Project

Clinton, Columbia, Luzerne, Lycoming, Shuylkill, PA

Dear Mr/Ms Doe,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 670193 (Final_1) for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

Potential Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the project vicinity. Based on a detailed PNDI review, DCNR determined potential impacts to the following threatened or endangered species or species of special concern.

Station 607 Maransky and Station 607 Hayfield:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Scirpus ancistrochaetus</i>	Northeastern Bulrush	Endangered	Threatened
<i>Streptopus amplexifolius</i>	White Twisted-stalk	Threatened	Endangered
<i>Ribes lacustre</i>	Swamp Currant	Special Concern	Endangered
<i>Gaultheria hispidula</i>	Creeping Snowberry	Rare	Rare

Leidy Line D 36" Hensel Replacement:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Sorbus decora</i>	Showy Mountain-ash	Endangered	Endangered
<i>Carex bebbii</i>	Bebb's Sedge	Endangered	Endangered
<i>Carex disperma</i>	Soft-leaved Sedge	Rare	Rare
<i>Galium latifolium</i>	Purple Bedstraw	None	Special Concern

Survey Request

DCNR requests a survey for the following species:

- ***Scirpus ancistrochaetus* (Northeastern Bulrush):** documented in pipeline ROW and shallow emergent wetland; suitable habitat includes vernal ponds and mudholes; fruits in July, and persists through January
- ***Streptopus amplexifolius* (White Twisted-stalk):** documented in a moist shaded ravine; suitable habitat includes cool ravines; Flowers May-June

- ***Ribes lacustre* (Swamp Currant):** documented in a moist shaded ravine; suitable habitat includes swamps and cold, wet woods; Flowers May - June
 - ***Gaultheria hispidula* (Creeping Snowberry):** documented in flat wet woods; suitable habitat includes hummocks and tree stumps in bogs and swamps; Flowers June, fruits September
 - ***Sorbus decora* (Showy Mountain-ash):** documented in a tamarack swamp; suitable habitat includes rocky slopes; Flowers May, fruits September – October
 - ***Carex bebbii* (Bebb’s Sedge):** documented in sphagnum meadow; suitable habitat includes pond edges, boggy pastures, and moist sand flats, Fruits June – July
 - ***Carex disperma* (Soft-leaved Sedge):** documented in a tamarack swamp; suitable habitat includes swampy woods, bogs, and rhododendron swamps; fruits May-August
 - ***Galium latifolium* (Purple Bedstraw):** documented along Hensel Fork creek; suitable habitat includes woods, rocky slopes and roadsides; Flowers June-July
- ✓ A botanical survey for the above species should be conducted by a qualified botanist at the appropriate time of year. Please submit the resulting report to our office for review. Contact our office prior to the survey for detailed information about the species or for a list of qualified surveyors.
- ✓ **Your botanist should carefully review the new DCNR Botanical Survey Protocols available at <https://conservationexplorer.dcnr.pa.gov/content/survey-protocols>.** These protocols are recommended to ensure that all necessary information is collected and that survey reports are prepared properly. It is the expectation of DCNR that these protocols will be followed when conducting surveys for species under our jurisdiction.
- ✓ All target and non-target state-listed species found during the botanical survey should be reported to our office. **Please submit a completed Botanical Field Survey Form for each occurrence or population identified: <http://www.gis.dcnr.state.pa.us/PNDI/2015%20Field%20Survey%20Form.pdf>.** Mitigation measures and monitoring may be requested if state-listed species are found on or adjacent to the site.
- ✓ If preferred habitat does not exist on site, a survey may not be necessary. Please submit a habitat assessment report which describes the current land cover, habitat types, and species found on site.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an “Update” (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR’s jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth’s other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely



Greg Podnieszinski, Section Chief
Natural Heritage Section

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From: [Kevin Clark](#)
To: ["Dogonniuck, Alexander"](#)
Cc: ["Henry, Josh"](#); [Richardson, Devyn](#); [Wardwell, Lindsay](#); ["Sheppard, Evan"](#)
Subject: RE: PNDI-670193 Leidy South Project
Date: Thursday, November 29, 2018 9:28:00 AM
Attachments: [Station_607_Hayfield_Photo_Documentation_112018.pdf](#)
[Station_607_Maransky_Photo_Documentation_112018.pdf](#)

Alex,

Thank you for your response regarding the Leidy South Project (Project). The Project is still in the initial phases and the siting of the potential 607 compressor station has not yet been finalized. Transco will stress avoidance and minimization of impacts to wetlands, streams, and forested areas to the maximum extent practicable. Wetlands delineations have not been completed at this time. Site photographs of the current potential 607 compressor station locations have been provided for your review. Additional data will be provided once surveys of these areas are completed.

Thanks,

Kevin Clark | PWS
Project Manager
WHM Consulting, Inc.
2525 Green Tech Drive: Suite B
State College, PA 16803
(814) 689-1650 ext. 105



From: Dogonniuck, Alexander <c-adogonni@pa.gov>
Sent: Tuesday, November 06, 2018 8:44 AM
To: Kevin Clark <kevinc@whmgroup.com>
Subject: PNDI-670193 Leidy South Project

Hello Mr. Clark,

I have received your project and am reviewing it for potential impacts on threatened, endangered, and special concern species or resources. I am particularly interested in knowing more about the New Grassroots Compressor Station 607 (Luzerne) and Station 620 (Schuylkill). Have wetland delineations or surveys been conducted for the potential project areas. Do you have any site photos on file?

I am more concerned about Station 607 because it will be located in a wooded habitat and there are streams and wetland running through the site.

Please send any additional information you may have on these locations

Thanks,
Alex

BUREAU OF FORESTRY

November 29, 2018

PNDI Number: 670193

Version: Final_1; 10/31/18

Kevin Clark

WHM Consulting, Inc.

2525 Green Tech Dr., Suite B

State College, PA 16803

Email: kevinc@whmgroup.com (hard copy will not follow)

Re: Leidy South Project

Clinton, Columbia, Luzerne, Lycoming, Shuylkill, PA

Dear Mr/Ms Doe,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 670193 (Final_1) for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

Potential Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the project vicinity. Based on a detailed PNDI review, DCNR determined potential impacts to the following threatened or endangered species or species of special concern.

Station 607 Maransky and Station 607 Hayfield:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Scirpus ancistrochaetus</i>	Northeastern Bulrush	Endangered	Threatened
<i>Streptopus amplexifolius</i>	White Twisted-stalk	Threatened	Endangered
<i>Ribes lacustre</i>	Swamp Currant	Special Concern	Endangered
<i>Gaultheria hispidula</i>	Creeping Snowberry	Rare	Rare

Leidy Line D 36" Hensel Replacement:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Scirpus ancistrochaetus</i>	Northeastern Bulrush	Endangered	Threatened
<i>Sorbus decora</i>	Showy Mountain-ash	Endangered	Endangered
<i>Carex bebbii</i>	Bebb's Sedge	Endangered	Endangered
<i>Carex disperma</i>	Soft-leaved Sedge	Rare	Rare
<i>Galium latifolium</i>	Purple Bedstraw	None	Special Concern

Survey Request

DCNR requests a survey for the following species:

- ***Scirpus ancistrochaetus* (Northeastern Bulrush):** documented in pipeline ROW and shallow emergent wetland; suitable habitat includes vernal ponds and mudholes; fruits in July, and persists through January
- ***Streptopus amplexifolius* (White Twisted-stalk):** documented in a moist shaded ravine; suitable habitat includes cool ravines; Flowers May-June

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- ***Ribes lacustre* (Swamp Currant)**: documented in a moist shaded ravine; suitable habitat includes swamps and cold, wet woods; Flowers May - June
 - ***Gaultheria hispidula* (Creeping Snowberry)**: documented in flat wet woods; suitable habitat includes hummocks and tree stumps in bogs and swamps; Flowers June, fruits September
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 - ***Carex bebbii* (Bebb’s Sedge)**: documented in sphagnum meadow; suitable habitat includes pond edges, boggy pastures, and moist sand flats, Fruits June – July
 - ***Carex disperma* (Soft-leaved Sedge)**: documented in a tamarack swamp; suitable habitat includes swampy woods, bogs, and rhododendron swamps; fruits May-August
 - ***Galium latifolium* (Purple Bedstraw)**: documented along Hensel Fork creek; suitable habitat includes woods, rocky slopes and roadsides; Flowers June-July
- ✓ A botanical survey for the above species should be conducted by a qualified botanist at the appropriate time of year. Please submit the resulting report to our office for review. Contact our office prior to the survey for detailed information about the species or for a list of qualified surveyors.
- ✓ **Your botanist should carefully review the new DCNR Botanical Survey Protocols available at <https://conservationexplorer.dcnr.pa.gov/content/survey-protocols>.** These protocols are recommended to ensure that all necessary information is collected and that survey reports are prepared properly. It is the expectation of DCNR that these protocols will be followed when conducting surveys for species under our jurisdiction.
- ✓ All target and non-target state-listed species found during the botanical survey should be reported to our office. **Please submit a completed Botanical Field Survey Form for each occurrence or population identified: <http://www.gis.dcnr.state.pa.us/PNDI/2015%20Field%20Survey%20Form.pdf>.** Mitigation measures and monitoring may be requested if state-listed species are found on or adjacent to the site.
- ✓ If preferred habitat does not exist on site, a survey may not be necessary. Please submit a habitat assessment report which describes the current land cover, habitat types, and species found on site.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an “Update” (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR’s jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth’s other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely



Greg Podnieszinski, Section Chief
Natural Heritage Section

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*Leidy South Project
PA DEP Section 401 Water Quality Certification Application
Transcontinental Gas Pipe Line Company, LLC*

**DCNR & USFWS BOTANICAL SURVEY REPORT
(PRIVILEGED)**

BUREAU OF FORESTRY

October 3, 2019

PNDI Number: 670193
Version: Final_1; 8/21/19

Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, PA 16803
Email: kevinc@whmgroup.com (hard copy will not follow)

Re: Leidy South Project
Clinton, Columbia, Luzerne, Lycoming, Schuylkill, Wyoming, PA

Dear Mr. Clark,

Thank you for the submission of your field survey for Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 670193 (Final_1) for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated per Survey

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. DCNR requested a botanical survey for the following species on June 3, 2019:

Station 607 Maransky and Station 607 Hayfield:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Scirpus ancistrochaetus</i>	Northeastern Bulrush	Endangered	Threatened
<i>Streptopus amplexifolius</i>	White Twisted-stalk	Threatened	Endangered
<i>Ribes lacustre</i>	Swamp Currant	Special Concern	Endangered
<i>Gaultheria hispidula</i>	Creeping Snowberry	Rare	Rare

Leidy Line D 36" Hensel Replacement:

Scientific Name	Common Name	PA Current Status	PA Proposed Status
<i>Sorbus decora</i>	Showy Mountain-ash	Endangered	Endangered
<i>Carex bebbii</i>	Bebb's Sedge	Endangered	Endangered
<i>Carex disperma</i>	Soft-leaved Sedge	Rare	Rare
<i>Galium latifolium</i>	Purple Bedstraw	None	Special Concern

A survey was conducted by Mallory Gilbert, Eric Burkhardt, and David Woods of WHM on between May and July 2019. *Scirpus ancistrochaetus* and *Galium latifolium* were both found within the survey corridor, but outside the proposed limits of disturbance. Therefore, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely

A handwritten signature in black ink that reads "Greg Podnieszinski". The signature is written in a cursive style and is centered within a light gray rectangular box.

Greg Podnieszinski, Section Chief
Natural Heritage Section



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

May 7, 2020

**Re: Update PNDI Search ID: PNDI-670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

To Whom it May Concern:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), PNDI-670193. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were include in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to rare, candidate, threatened or endangered species.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (412) 713-0485 or contact me via e-mail at josh.henry@williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

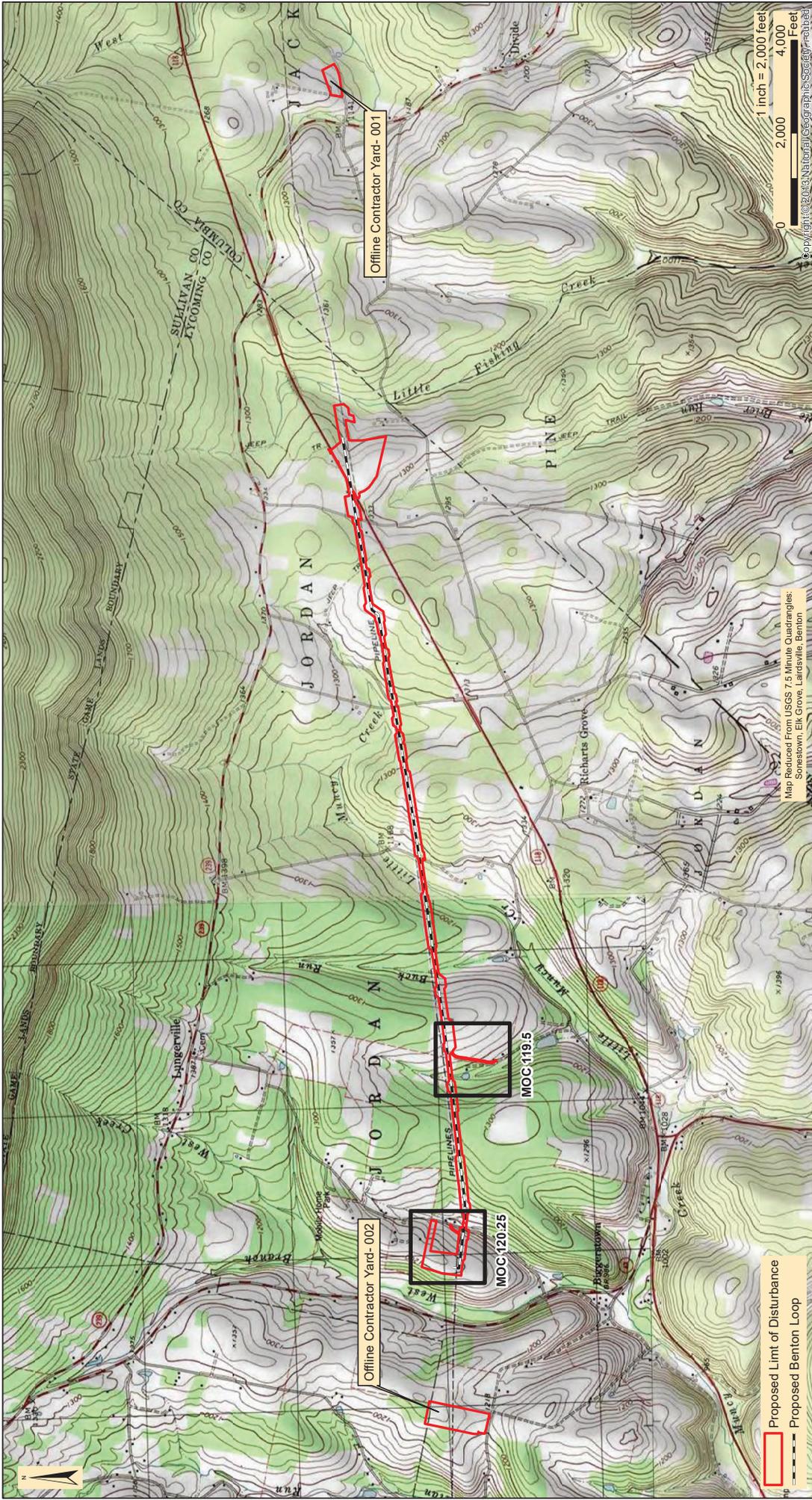
Josh Henry
Environmental Specialist

Attachments: Attachment A: Mapping

cc: Shauna Akers, Transco
Kevin Clark, WHM Consulting, Inc.

ATTACHMENT A
MAPPING

BENTON LOOP



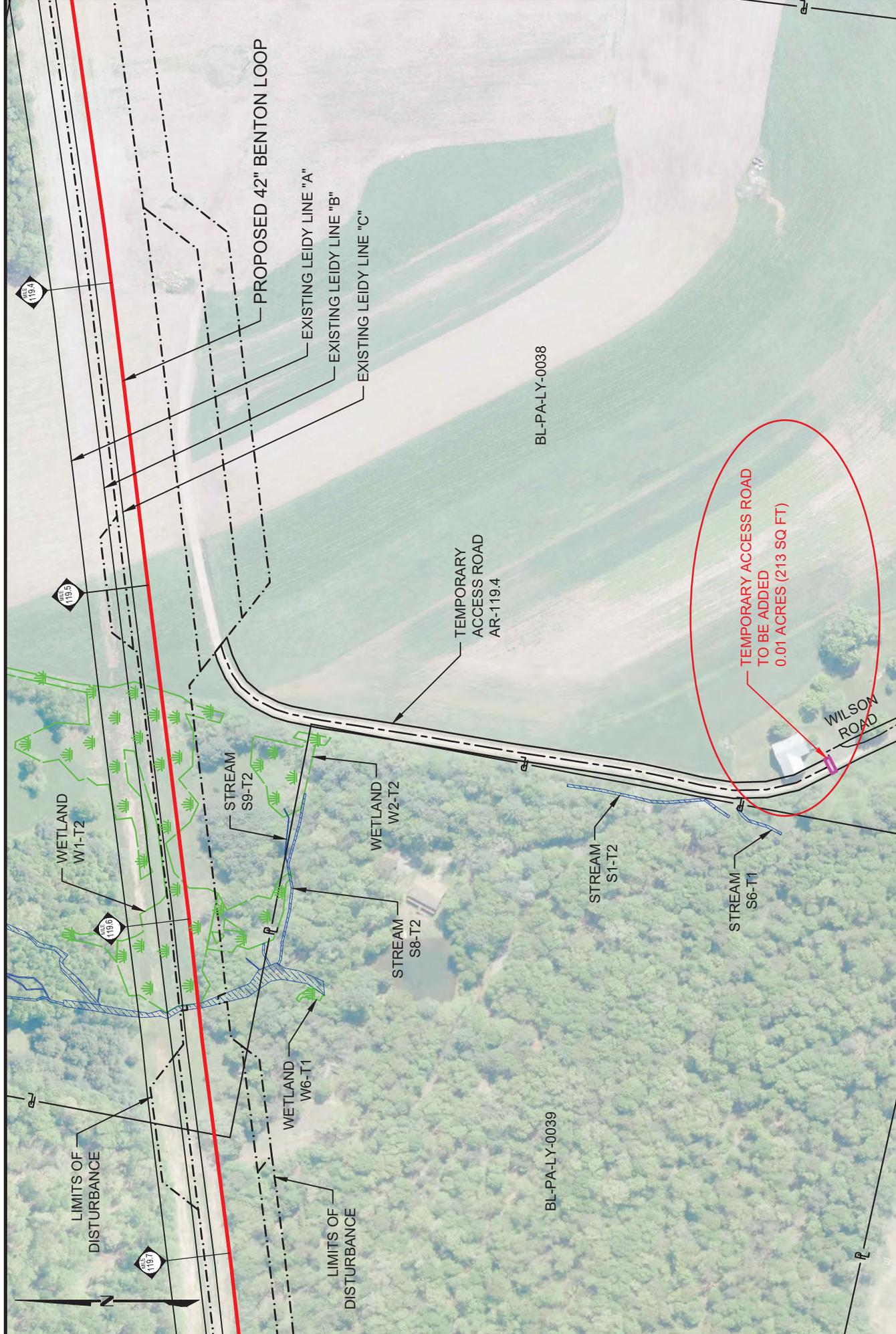
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

LEIDY LINE D 42" BENTON LOOP
PROJECT LOCATION MAP

Date: 5/4/2020
 WHM DRAWING NUMBER: WILLIAMS202B003
 Drawn By: FTN
 Figure Number: 1

designs, permits, resolutions
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

LYCOMING & COLUMBIA COUNTIES
 PENNSYLVANIA

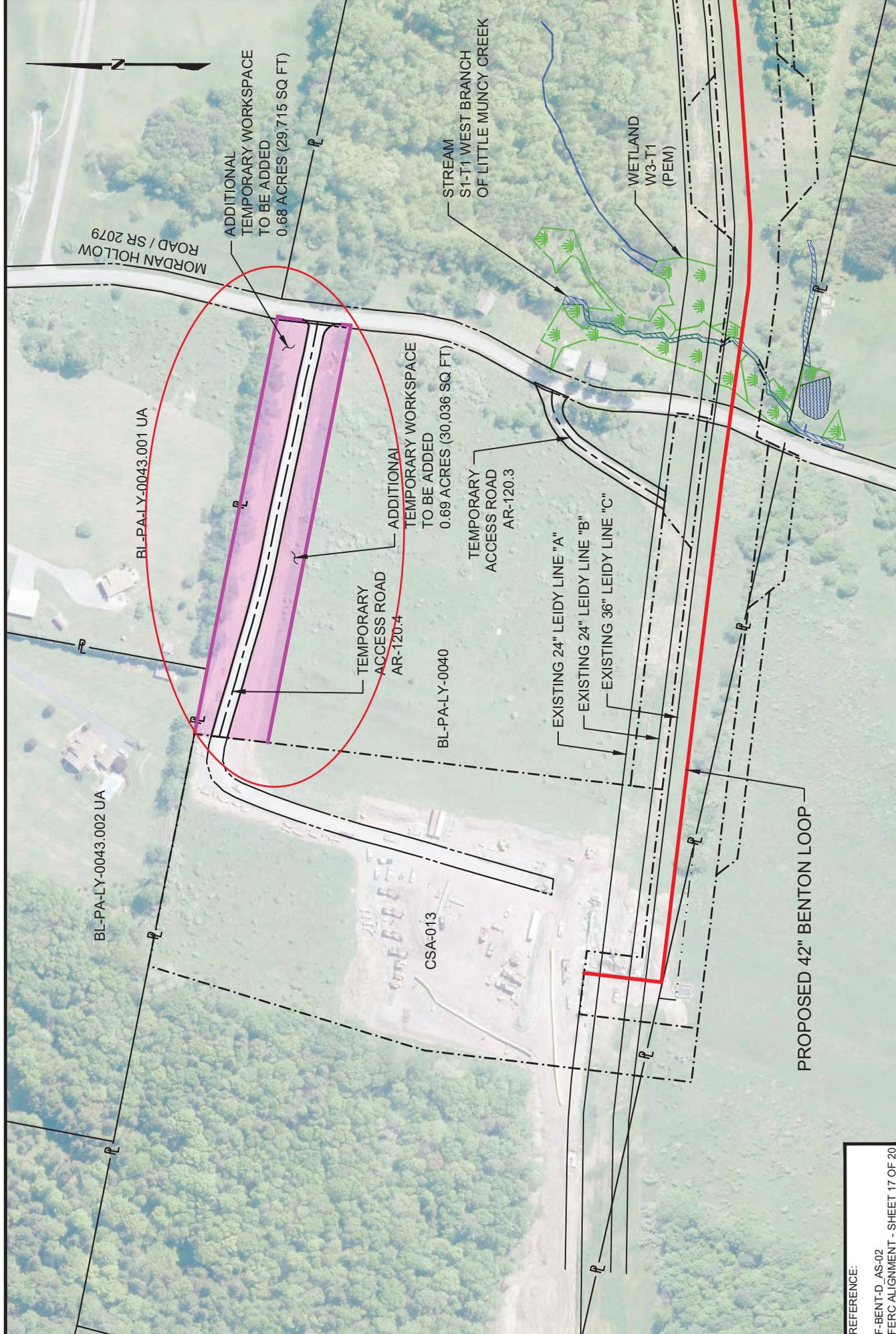


MOC-BENT-AR 119.5

LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 42" BENTON LOOP
 WORKSPACE CHANGE
 MOC - 119.5

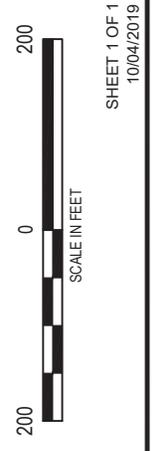


- LEGEND:
- PROPOSED 42" BENTON LOOP
 - EXISTING PIPELINES
 - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM CROSSING
 - WETLAND AREA



MOC-BENT-120_25

LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 42" BENTON LOOP
 WORKSPACE CHANGE
 MOC - 120.25



REFERENCE:
 F-BENT-D_AS-02
 FERC ALIGNMENT - SHEET 17 OF 20

- LEGEND:
- PROPOSED 42" BENTON LOOP
 - EXISTING PIPELINES
 - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM
 - WETLAND AREA

HILLTOP LOOP



1 inch = 1,500 feet
 0 1,500 3,000 Feet
 Copyright © 2013 National Geographic Society, USA/2013

Map Reduced From USGS 7.5 Minute Quadrangles:
 Tamaack, Remoro West, Young Woman's Creek, Remoro East

— Proposed Hilltop Loop
 — Proposed Limit of Disturbance

Date:	5/4/2020
WHM DRAWING NUMBER:	WILLIAMS201B002
Drawn By:	FTN
Figure Number:	2-1

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

LEIDY LINE D 36" HILLTOP LOOP
PROJECT LOCATION MAP

CHAPMAN TOWNSHIP

CLINTON COUNTY

PENNSYLVANIA

WHM consulting, INC.
 designs, permits, resolutions
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557



MOC-HILL-183_5

LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 36" HILLTOP LOOP
 WORKSPACE CHANGE
 MOC 183.5



- LEGEND:
- PROPOSED 36" HILLTOP LOOP
 - EXISTING PIPELINES
 - - - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM
 - WETLAND AREA

TEMPORARY WORKSPACE TO BE REMOVED 0.03 ACRES (1,098 SQ. FT.)

HL-PA-CL-0001

WETLAND W1-T8 (PEM)

HL-PA-CL-0003

LIMITS OF DISTURBANCE

WETLAND W3-T7-HL (PEM)

MILE 183.6

EXISTING 24" LEIDY LINE "A"
 EXISTING 24" LEIDY LINE "B"
 EXISTING 30" LEIDY LINE "C"

LIMITS OF DISTURBANCE

TEMPORARY WORKSPACE TO BE ADDED 0.03 ACRES (1,098 SQ. FT.)

STREAM S1-T8-HL

PROPOSED 36" HILLTOP LOOP

47'±
 27'±
 47'±

HENSEL REPLACEMENT



Map Reduced From USGS 7.5 Minute Quadrangles:
Tamarack & Young Woman's Creek.

Date:	5/4/2020
WHM DRAWING NUMBER:	WILLIAMS202B001
Drawn By:	FTN
Figure Number:	1-1

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

LEIDY LINE D 36" HENSEL REPLACEMENT
PROJECT LOCATION MAP

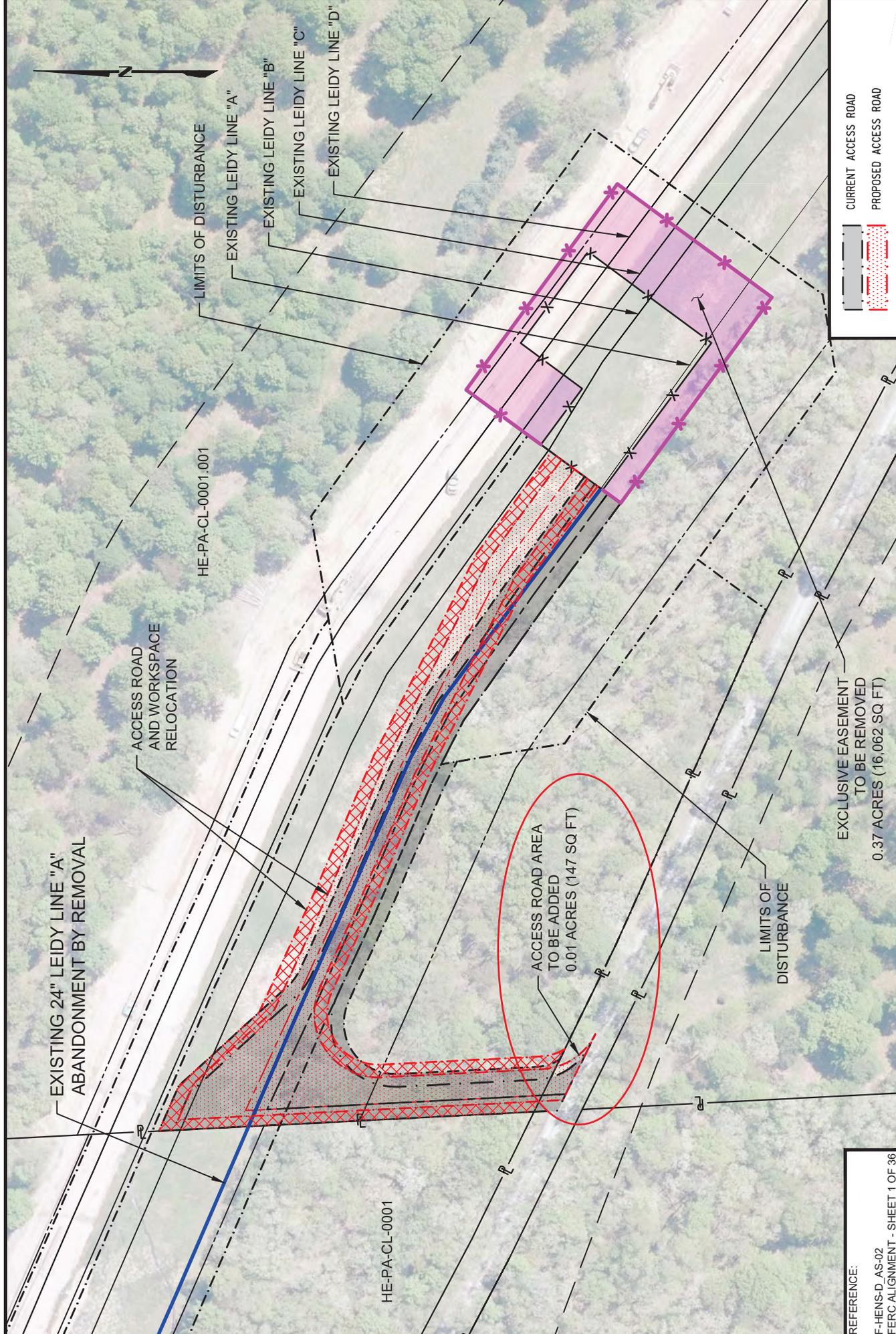
LEIDY & CHAPMAN TOWNSHIP

CLINTON COUNTY

PENNSYLVANIA

- Leidy Line "A" Abandonment In-Place
- Proposed Hensel Replacement
- Proposed Limit of Disturbance

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State College, PA 16803
Tele: 814.689.1650 Fax: 814.689.1587





 REV 2

 MOC-HENS-188_1

LEIDY SOUTH PROJECT

MEMORANDUM OF CHANGE

36" HENSEL REPLACEMENT

EXCLUSIVE EASEMENT & ACCESS ROAD CHANGE

MOC 188.1

SHEET 1 OF 1

 10/14/2019

100 0 100

 SCALE IN FEET

REFERENCE:

 F-HENS-D_AS-02

 FERC ALIGNMENT - SHEET 1 OF 38

LEGEND:

 EXISTING 24" LEIDY LINE "A"

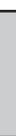
 EXISTING PIPELINES

 LIMITS OF DISTURBANCE

 PROPERTY LINE

 STREAM

 WETLAND AREA

 CURRENT ACCESS ROAD

 PROPOSED ACCESS ROAD

HE-PA-CL-0001

 HE-PA-CL-0001.001

EXISTING 24" LEIDY LINE "A"
ABANDONMENT BY REMOVAL

ACCESS ROAD
AND WORKSPACE
RELOCATION

LIMITS OF DISTURBANCE

EXISTING LEIDY LINE "A"

EXISTING LEIDY LINE "B"

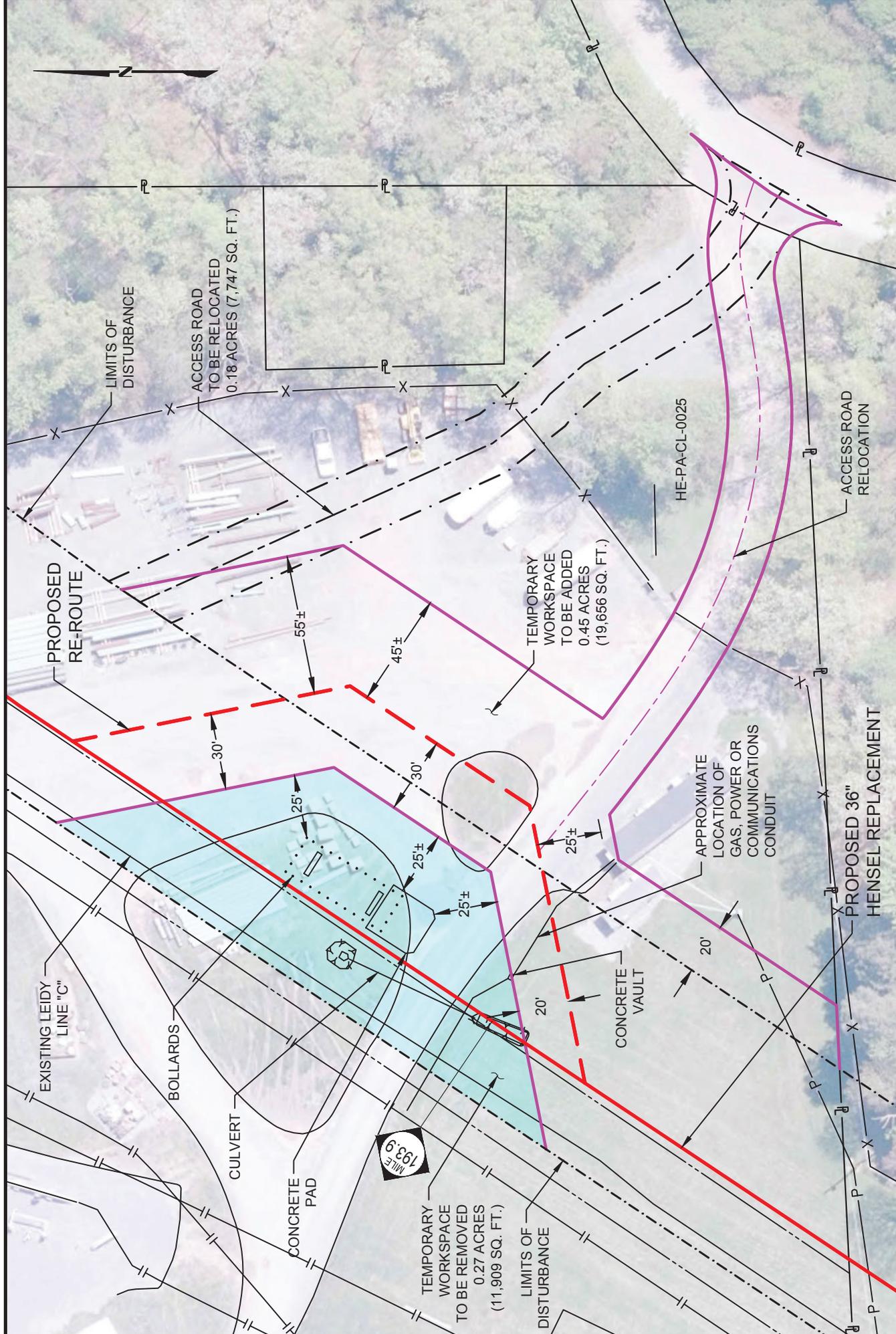
EXISTING LEIDY LINE "C"

EXISTING LEIDY LINE "D"

ACCESS ROAD AREA
TO BE ADDED
0.01 ACRES (147 SQ FT)

LIMITS OF
DISTURBANCE

EXCLUSIVE EASEMENT
TO BE REMOVED
0.37 ACRES (16,062 SQ FT)





MOC-HENS-193_9

LEIDY SOUTH PROJECT
MEMORANDUM OF CHANGE
36" HENSEL REPLACEMENT
RE-ROUTE & ACCESS ROAD CHANGE
MOC 193.9

LEGEND:

- PROPOSED 36" HENSEL REPLACEMENT
- EXISTING PIPELINES
- - - - LIMITS OF DISTURBANCE
- X — PROPERTY LINE
- STREAM
- WETLAND AREA

50 0 50
SCALE IN FEET

SHEET 1 OF 1
09/13/2019

BUREAU OF FORESTRY

May 20, 2020

PNDI Number: 670193
Version: Final_5; 5/07/20

Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, PA 16803
Email: kevinc@whmgroup.com (hard copy will not follow)

Re: Leidy South Project
Clinton, Columbia, Luzerne, Lycoming, Schuylkill, Wyoming; PA

Dear Mr. Clark,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **670193 (Final_5)** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter and a permit has not been acquired, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative, description of project changes and accurate map). As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Alexander Dogonniuck, Ecological Information Specialist, by phone (717-783-3913) or via email (c-adogonni@pa.gov).

Sincerely



Greg Podnieszinski, Section Chief
Natural Heritage Section

*Leidy South Project
PA DEP Section 401 Water Quality Certification Application
Transcontinental Gas Pipe Line Company, LLC*

PENNSYLVANIA GAME COMMISSION

From: [Kevin Clark](#)
To: olbraun@pa.gov
Cc: [Henry, Josh](#); [Richardson, Devyn](#); [Wardwell, Lindsay](#)
Subject: RE: Leidy South Project - PGC Request for Additional Information (PGC ID # 201811010501)
Date: Friday, January 11, 2019 12:52:00 PM
Attachments: [image001.jpg](#)
[Hilltop Loop Topo Project Location 010219.pdf](#)
[HILLTOP LOOP - Aerial and Photograph Location Map 011019.pdf](#)
[HILLTOP LOOP - Photographic Documentation.pdf](#)

Olivia,

Tree removal will be required to accommodate construction of the Leidy Line D 36" Hilltop Loop. Based on the currently proposed alignment and workspace requirements, ±25 acres of tree removal is anticipated along the pipeline ROW. In addition, some of the existing access roads proposed to be utilized for the project will likely require some minor tree clearing to allow for access of heavy equipment. Mapping has been provided that outlines the proposed Limits of Disturbance which includes: temporary workspace, permanent workspace, access roads and staging/support areas. In addition, photographic documentation has been provided to represent habitat within the area proposed to be impacted.

Thanks,
Kevin

From: Braun, Olivia <olbraun@pa.gov>
Sent: Tuesday, December 18, 2018 12:57 PM
To: Kevin Clark <kevinc@whmgroup.com>
Cc: devyn.richardson@williams.com; Henry, Josh <Josh.Henry@williams.com>; Wardwell, Lindsay <LWardwell@ene.com>
Subject: RE: [External] RE: Leidy South Project - PGC Request for Additional Information (PGC ID # 201811010501)

Hi Kevin,
Thanks for this additional information. It's very helpful and has provided much of the clarification we were hoping for.

However, according to the project narrative provided in October 2018, the pipeline facilities are going to be co-located within/adjacent to the existing Transco ROW and temporary and/or permanent ROW will need to be widened at varying widths to accommodate the construction of the loops and replacement. Can you provide additional information pertaining to the ROW needs for the Leidy Line D 36" Hilltop Loop? Will tree removal be required (if so, how much and where) and what is the existing and proposed width of the ROW going to be to accommodate this construction? Also, please provide any mapping that may be available to illustrate the temporary vs. permanent ROW and access roadways for this construction. Finally, if you have color photographs of the habitat within the area that is to be impacted by this loop and could provide them with a photo location map, it would be very helpful as well.

If you have any questions, please let me know.

Thanks,

Olivia A. Braun

Pennsylvania Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110
Phone: 717-787-4250, Extension 3128

From: Kevin Clark <kevinc@whmgroupp.com>

Sent: Monday, December 17, 2018 8:52 AM

To: Braun, Olivia <olbraun@pa.gov>

Cc: devyn.richardson@williams.com; Henry, Josh <Josh.Henry@williams.com>; Wardwell, Lindsay <LWardwell@ene.com>

Subject: [External] RE: Leidy South Project - PGC Request for Additional Information (PGC ID # 201811010501)

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

Olivia,

Transcontinental Gas Pipe Line Company, LLC proposes to utilize the *Manual Project* for the review of this Project. The following information has been attached to this email:

1. USGS mapping including GPS coordinates for the center of the project area for compressor station locations and the eastern and western terminus for the pipeline segments; and
2. USGS map outlining the abutting Maransky and Hayfield Properties
 - a. Polygon shapefiles submitted for the Maransky and Hayfield properties are abutting. When viewed on the PNDI online mapper, these features show as only one polygon; however two shapefiles were submitted. A map has been provided for clarification purposes.

Work being proposed at Compressor Station 605 will not involve earth disturbance, but is considered part of the overall project. Please include a review of this location based on the scope of work proposed.

Thanks and let me know if you need any additional information to complete your initial review, and if hard copies are required of the initial submittal and updated mapping. Once further project information is obtained and field surveys are completed, the additional information will be provided

for your review.

Kevin Clark | PWS
Project Manager
WHM Consulting, Inc.
2525 Green Tech Drive; Suite B
State College, PA 16803
(814) 689-1650 ext. 105



From: Braun, Olivia <olbraun@pa.gov>
Sent: Thursday, December 06, 2018 2:43 PM
To: devyn.richardson@williams.com; Kevin Clark <kevinc@whmgroupp.com>
Subject: Leidy South Project - PGC Request for Additional Information (PGC ID # 201811010501)

Good Afternoon,

The PGC is in the process of reviewing the above referenced project and would like to request some additional information. At your earliest convenience, please provide the following information so that we may continue our review of this project.

- Both a PNDI receipt and a Manual Project submission form have been submitted for this project. Please confirm if the Applicant would like the PGC to handle this project as a Manual Project (by using the Manual Project submission form) or an online submission (by using the online PNDI Receipt # 670193). Then depending on whether the Applicant chooses to utilize the Manual Project Submission Form or the online PNDI submittal method, please provide the following information.
 - *Manual Project* – Please provide updated USGS mapping that includes the GPS coordinates for each location where work is anticipated or being considered.
 - *Online PNDI Submittal with PNDI Receipt # 670193* – Please update the polygon that was submitted into PNDI to include each location where work is anticipated or being considered. For example, the cover letter provided discusses 9 locations where work is anticipated or being considered. However, the PNDI polygon(s) reflect only 7 of those locations. Once the additional locations are included, please re-finalized the PNDI receipt so that all areas are included in the review.
- The PGC recognizes that as of the submittal date, field surveys have not yet been completed for this project. However, if established, please provide mapping and/or GIS shapefiles illustrating where tree removal, ROW widening, permanent or temporary workspaces, access roads, etc. are to be located for the activities included in this review.

If you have any questions, please let me know.

Thanks,

Olivia A. Braun

Pennsylvania Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning & Habitat Protection
2001 Elmerton Avenue
Harrisburg, PA 17110
Phone: 717-787-4250, Extension 3128



January 22, 2019

PGC ID Number: 201811010501

Mr. Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, Pennsylvania 16803
kevinc@whmgroup.com

Re: *Transcontinental Gas Pipe Line Company, LLC (Transco) - Leidy South Project*
PNDI Manual Project Submission
Multiple Townships, Multiple Counties, Pennsylvania

Dear Mr. Clark,

Thank you for submitting the Pennsylvania Natural Diversity Inventory (PNDI) Manual Project Submission Form for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

Potential Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. The PGC has received and thoroughly reviewed the information that you provided to this office, as well as PNDI data, and has determined that potential impacts to the following threatened, endangered, and species of special concern birds and mammals may be associated with your project. Therefore, additional measures may be necessary to avoid potential impacts to the species listed below.

Scientific Name	Common Name	PA Status	Federal Status
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	THREATENED	THREATENED

Next Steps

Northern long-eared bats: Northern long-eared bats are a federally listed threatened species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Northern long-eared bats to the U.S. Fish and Wildlife Service.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,



Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner



OAB/oab

cc: Pamela Shellenberger, USFWS
Schnupp
Brauning
Turner
Librandi Mumma
Figured
Wenner
File



May 30, 2019

PGC ID Number: 201811010501 - Revision

Mr. Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, Pennsylvania 16803
kevinc@whmgroupp.com

Re: *Transcontinental Gas Pipe Line Company, LLC (Transco) - Leidy South Project*
PNDI Receipt File: *project_receipt_leidy_south_project_670193_FINAL_3.pdf*
Multiple Townships, Clinton, Columbia, Luzerne, Lycoming, Schuylkill and Wyoming
Counties, Pennsylvania

Dear Mr. Clark,

Thank you for submitting the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt File *project_receipt_leidy_south_project_670193_FINAL_3.pdf* for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

Potential Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. The PGC has received and thoroughly reviewed the information that you provided to this office, as well as PNDI data, and has determined that potential impacts to the following threatened, endangered, and species of special concern birds and mammals may be associated with your project. Therefore, additional measures may be necessary to avoid potential impacts to the species listed below.

Scientific Name	Common Name	PA Status	Federal Status
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	ENDANGERED	THREATENED
N/A	Winter Bat Colony	SPECIAL CONCERN	N/A

Northern long-eared bats: Northern long-eared bats are a federally listed threatened species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Indiana bats to the U.S. Fish and Wildlife Service.

Winter Bat Colony: The following should be performed for the *Central Penn South Potential Compressor Station 620 Options C and G* so that a more accurate determination of impacts can be made:

- *Winter Hibernacula Habitat Assessment:* In order for the PGC to determine potential impacts to winter bat colonies located on and adjacent to the project area, a winter hibernacula habitat assessment is to be conducted on and within 1,000 feet (within 1/4 mile, if blasting is proposed) of the project area, following the *PGC Protocol for Assessing Abandoned Mines/Caves for Bat Surveys* which can be found in Appendix B of the attached *PGC Eastern Small-footed Bat Environmental Review Guidance Document*. Results of the winter hibernacula habitat assessment are to be submitted to the PGC no later than December 31st of the year the survey is conducted for review.
- Any openings identified during the Winter Hibernacula Habitat Assessment that met the criteria as having the potential as bat hibernacula will need to be surveyed in the fall to determine the presence or absence of bat species. A PGC special use permit needs to be obtained by the consultant in order to conduct any surveys that involve the handling of bats. Results of the fall sampling surveys are to be submitted to the PGC no later than December 31st of the year the survey is conducted. Survey results will be used by the PGC to determine what, if any avoidance and minimization measures need to be implemented.
- In addition to the above surveys, the PGC will require documentation regarding the connectivity between each of potential hibernacula located within 1/4 mile of the project area. Since this project may require blasting, the PGC is also concerned that the integrity of potential hibernacula within 1/4 mile of the project area may be jeopardized. Therefore, the Applicant must also provide documentation of how the structure, air flow, humidity, etc. at each potential hibernaculum within the 1,000-foot (1/4-mile, if blasting is required) radius will be maintained.

Central Penn North, Potential Compressor Station Option B appears to be located on or adjacent to **State Game Lands No. 206**. Please contact Mr. Michael Beahm, Land Management Supervisor, at 570-675-1143 to discuss and coordinate the project on State Game Lands.

Conservation Measure(s)

National Wetland Inventory Mapping (NWI) and/or aerial photos suggest that wetlands are located throughout the project area. The PGC is requesting that the final project avoid, or at least minimize to the greatest practical extent, any adverse impacts to these resources and their associated wildlife habitat.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,



Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner



OAB/oab

Enclosure: *PGC Eastern Small-footed Bat Environmental Review Guidance Document*

cc: Pamela Shellenberger, USFWS
Schnupp
Brauning
Turner
Librandi Mumma
Figured
Wenner
File



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

May 7, 2020

**Re: Update PNDI Search ID: PNDI-670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

To Whom it May Concern:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), PNDI-670193. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were include in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

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MOC – 120.25

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Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to rare, candidate, threatened or endangered species.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (412) 713-0485 or contact me via e-mail at josh.henry@williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

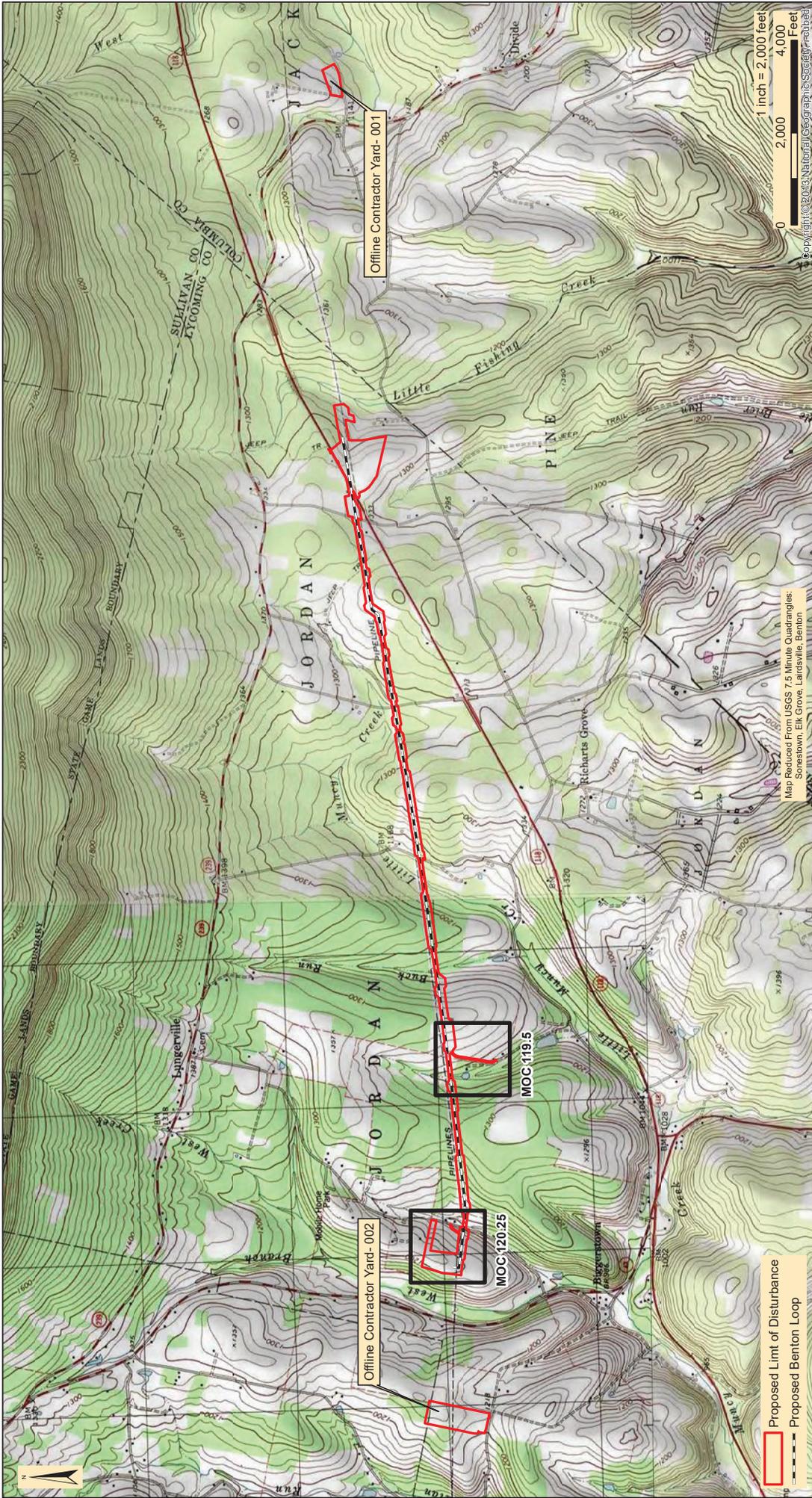
Josh Henry
Environmental Specialist

Attachments: Attachment A: Mapping

cc: Shauna Akers, Transco
Kevin Clark, WHM Consulting, Inc.

ATTACHMENT A
MAPPING

BENTON LOOP



Date: 5/4/2020
 WHM DRAWING NUMBER: WILLIAMS202B003
 Drawn By: FTN
 Figure Number: 1

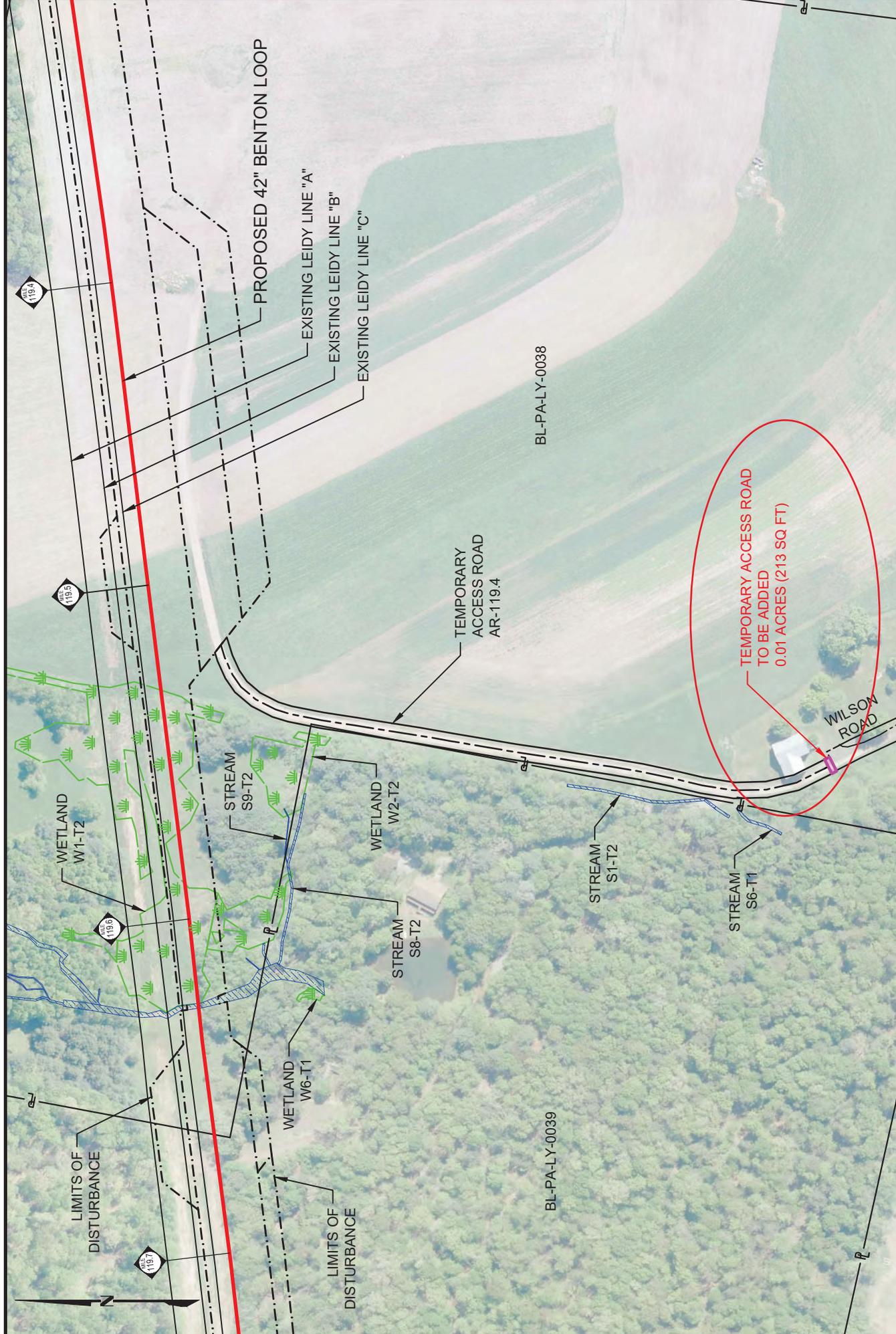
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Map Reduced From USGS 7.5 Minute Quadrangles:
 Sonestown, Elk Grove, Lairdsville, Benton

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 LEIDY SOUTH PROJECT
 LEIDY LINE D 42" BENTON LOOP
 PROJECT LOCATION MAP

LYCOMING & COLUMBIA COUNTIES
 PENNSYLVANIA

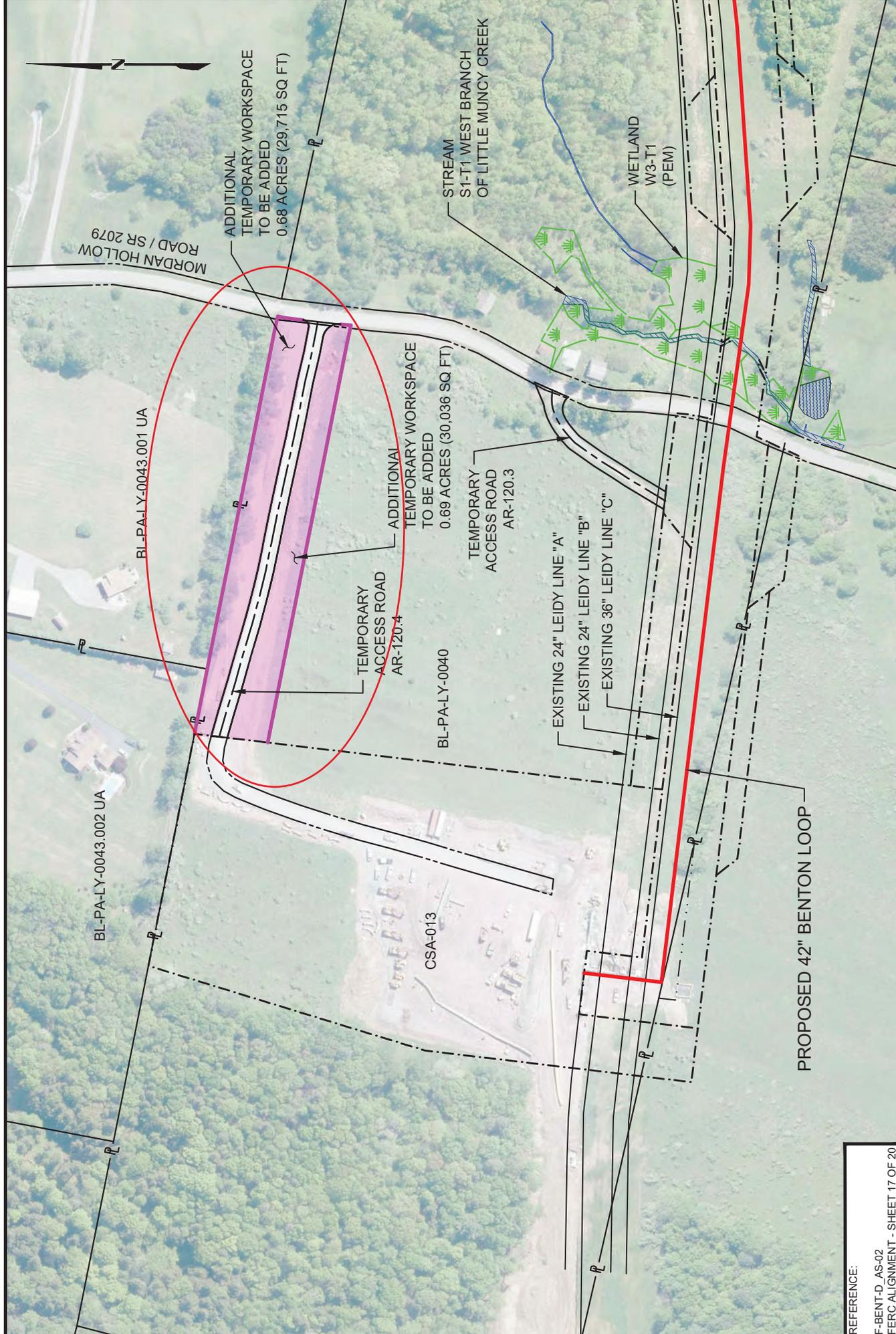
WHM
 designs, permits, resolutions
 consulting, INC.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557



LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 42" BENTON LOOP
 WORKSPACE CHANGE
 MOC - 119.5



- LEGEND:
- PROPOSED 42" BENTON LOOP
 - EXISTING PIPELINES
 - - - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM CROSSING
 - WETLAND AREA



MOC-BENT-120_25

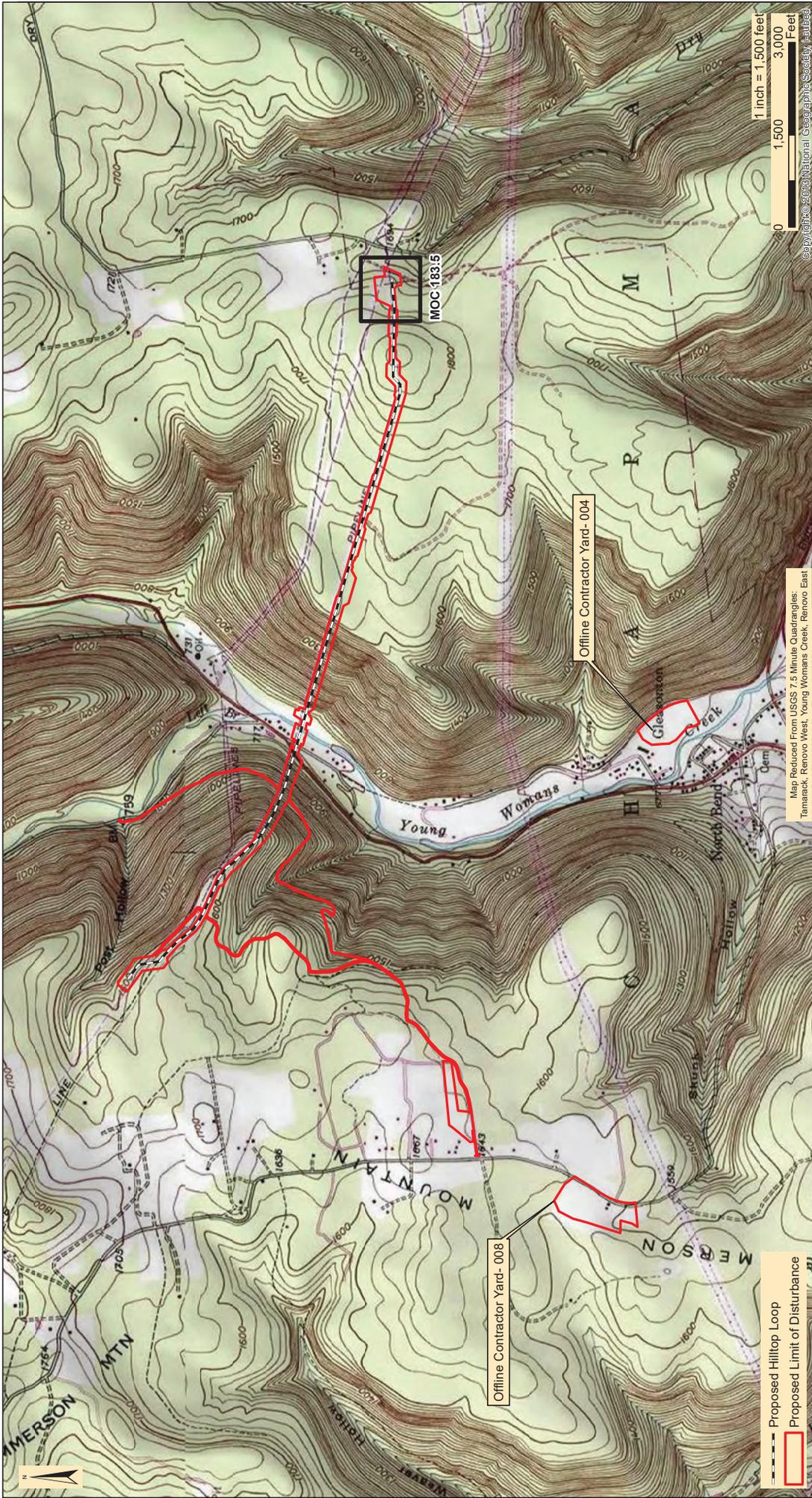
LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 42" BENTON LOOP
 WORKSPACE CHANGE
 MOC - 120.25



REFERENCE:
 F-BENT-D_AS-02
 FERC ALIGNMENT - SHEET 17 OF 20

- LEGEND:
- PROPOSED 42" BENTON LOOP
 - EXISTING PIPELINES
 - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM
 - WETLAND AREA

HILLTOP LOOP



1 inch = 1,500 feet
 0 1,500 3,000 Feet
 Copyright © 2013 National Geographic Society, Inc.

Map Reduced From USGS 7.5 Minute Quadrangles:
 Tamaack, Remoro West, Young Woman's Creek, Remoro East

— Proposed Hilltop Loop
 — Proposed Limit of Disturbance

Date:	5/4/2020
WHM DRAWING NUMBER:	WILLIAMS201B002
Drawn By:	FTN
Figure Number:	2-1

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

LEIDY LINE D 36" HILLTOP LOOP
PROJECT LOCATION MAP

CHAPMAN TOWNSHIP

CLINTON COUNTY

PENNSYLVANIA

WHM consulting, INC.
 designs, permits, resolutions
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 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557



MOC-HILL-183_5

LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 36" HILLTOP LOOP
 WORKSPACE CHANGE
 MOC 183.5



LEGEND:

	PROPOSED 36" HILLTOP LOOP
	EXISTING PIPELINES
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	STREAM
	WETLAND AREA

TEMPORARY WORKSPACE TO BE REMOVED 0.03 ACRES (1,098 SQ. FT.)

HL-PA-CL-0001

WETLAND W1-T8 (PEM)

EXISTING 24" LEIDY LINE "A"
 EXISTING 24" LEIDY LINE "B"
 EXISTING 30" LEIDY LINE "C"

LIMITS OF DISTURBANCE

TEMPORARY WORKSPACE TO BE ADDED 0.03 ACRES (1,098 SQ. FT.)

HL-PA-CL-0003

WETLAND W3-T7-HL (PEM)

STREAM S1-T8-HL

PROPOSED 36" HILLTOP LOOP

47'±
 27'±
 47'±

MILE 183.6

WETLAND W1-T8 (PEM)

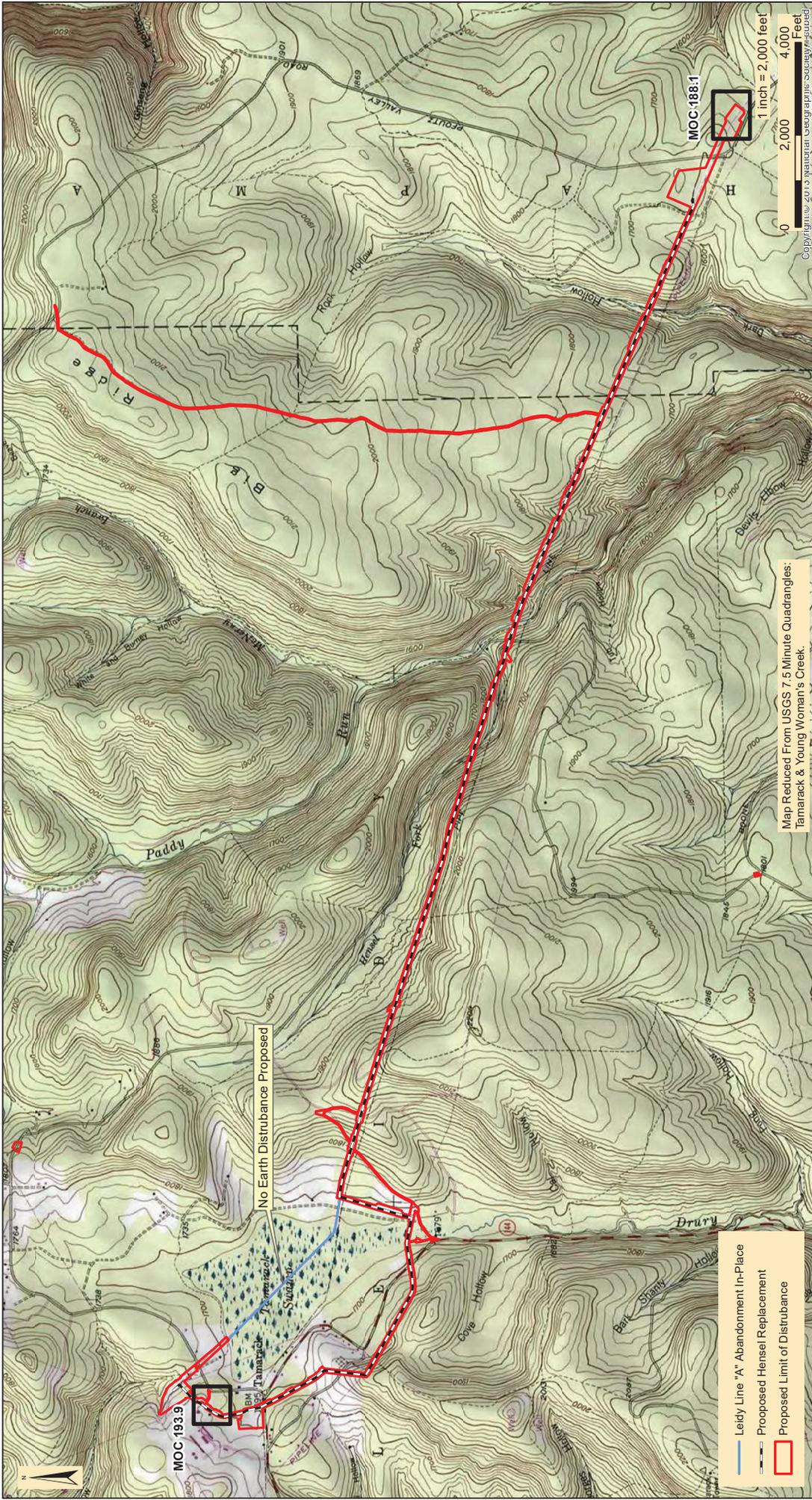
LIMITS OF DISTURBANCE

PROPERTY LINE

STREAM

WETLAND AREA

HENSEL REPLACEMENT



Map Reduced From USGS 7.5 Minute Quadrangles:
Tamarack & Young Woman's Creek.

Date:	5/4/2020
WHM DRAWING NUMBER:	WILLIAMS202B001
Drawn By:	FTN
Figure Number:	1-1

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

**LEIDY LINE D 36" HENSEL REPLACEMENT
PROJECT LOCATION MAP**

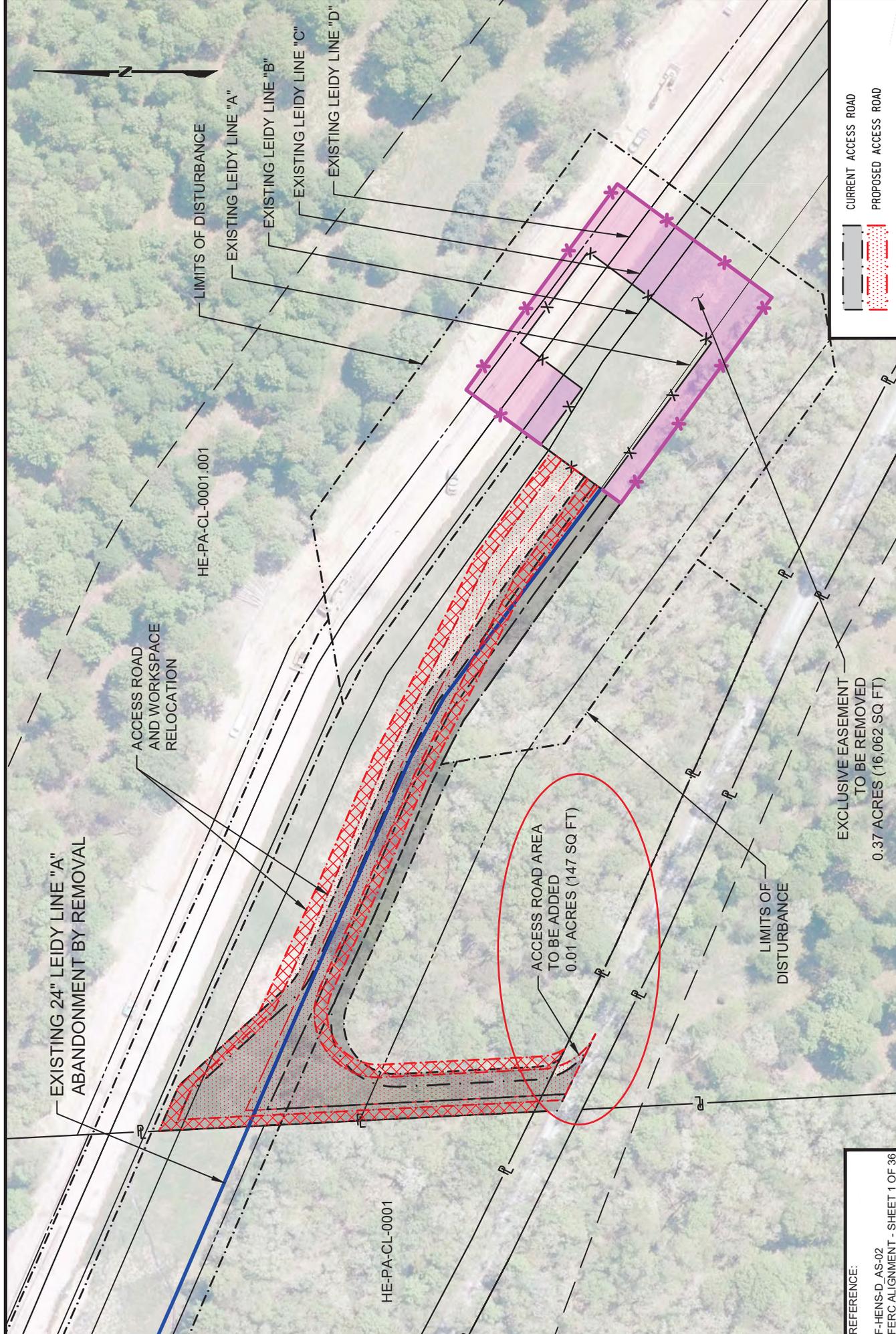
CLINTON COUNTY

LEIDY & CHAPMAN TOWNSHIP

PA 16803

- Leidy Line "A" Abandonment In-Place
- Proposed Hensel Replacement
- Proposed Limit of Disturbance

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2525 Green Tech Drive, Suite B,
State College, PA 16803
Tele: 814.689.1650 Fax: 814.689.1587

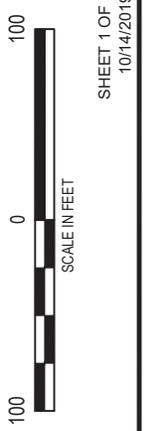


CURRENT ACCESS ROAD
PROPOSED ACCESS ROAD



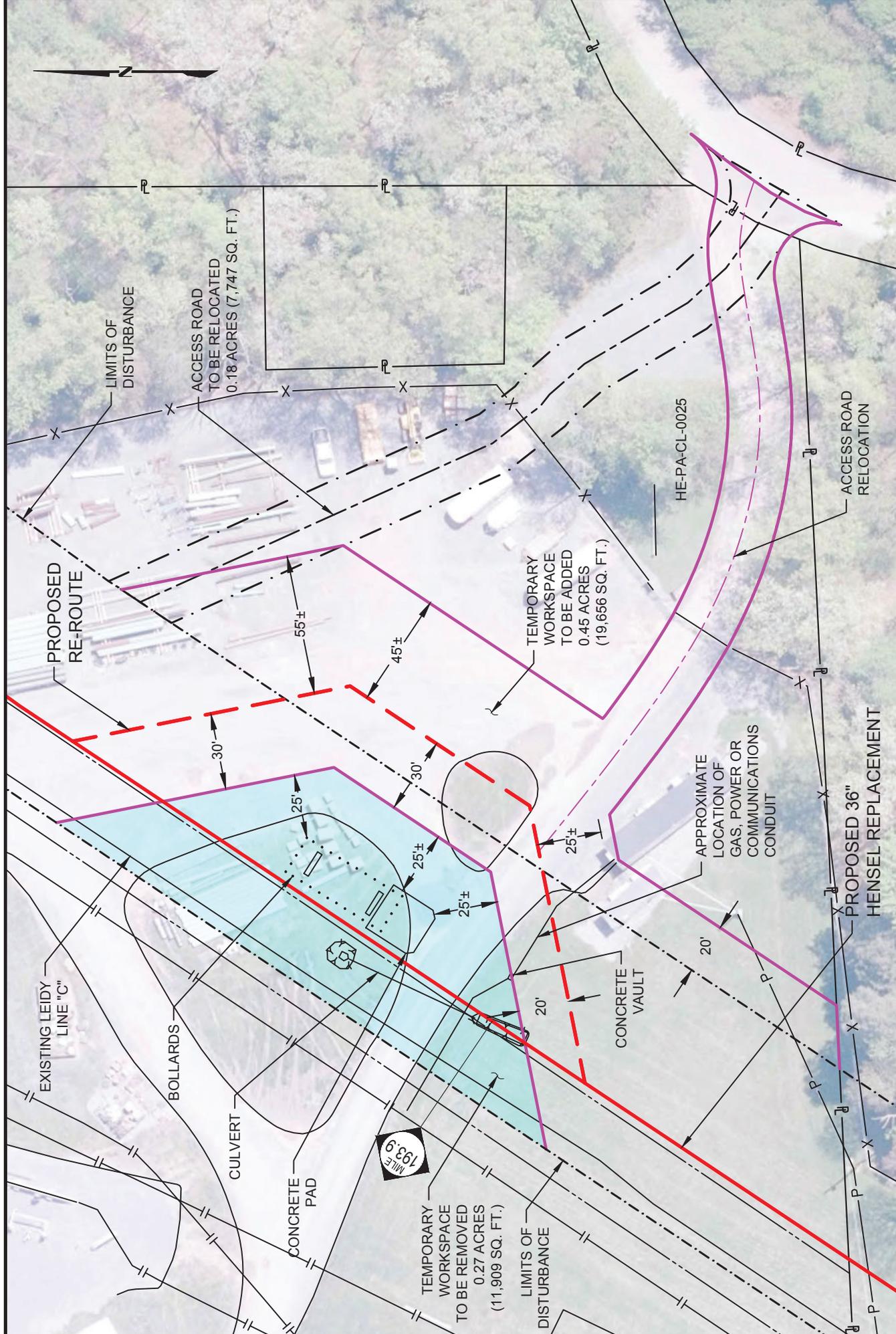
REV 2
MOC-HENS-188_1

LEIDY SOUTH PROJECT
MEMORANDUM OF CHANGE
36" HENSEL REPLACEMENT
EXCLUSIVE EASEMENT & ACCESS ROAD CHANGE
MOC 188.1



REFERENCE:
F-HENS-D_AS-02
FERC ALIGNMENT - SHEET 1 OF 38

- LEGEND:
- EXISTING 24" LEIDY LINE "A"
 - EXISTING PIPELINES
 - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM
 - WETLAND AREA



MOC-HENS-193_9

LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 36" HENSEL REPLACEMENT
 RE-ROUTE & ACCESS ROAD CHANGE
 MOC 193.9



LEGEND:

	PROPOSED 36" HENSEL REPLACEMENT
	EXISTING PIPELINES
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	STREAM
	WETLAND AREA



May 20, 2020

PGC ID Number: 201811010501 - Revision

Mr. Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, Pennsylvania 16803
kevinc@whmgroup.com

Re: *Transcontinental Gas Pipe Line Company, LLC (Transco) - Leidy South Project*
PNDI Receipt File: *project_receipt_leidy_south_project_670193_FINAL_5.pdf*
Multiple Townships, Multiple Counties, Pennsylvania

Dear Mr. Clark,

Thank you for submitting the Pennsylvania Natural Diversity Inventory (PNDI) Manual Project Submission Form for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only. This is an update to the letter issued on October 1, 2019 based on revisions to the limit of disturbance throughout the project area.

Potential Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. The PGC has received and thoroughly reviewed the information that you provided to this office, as well as PNDI data, and has determined that potential impacts to the following threatened, endangered, and species of special concern birds and mammals may be associated with your project. Therefore, additional measures may be necessary to avoid potential impacts to the species listed below.

Scientific Name	Common Name	PA Status	Federal Status
<i>Myotis septentrionalis</i>	Northern Long-eared Bat	THREATENED	THREATENED

Next Steps

Northern long-eared bats: Northern long-eared bats are a federally listed threatened species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Northern long-eared bats to the U.S. Fish and Wildlife Service.

This response represents the most up-to-date summary of the PNDI data files and is valid for two (2) years from the date of this letter. An absence of recorded information does not necessarily

imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for two additional years.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,



Olivia A. Braun
Environmental Planner
Division of Environmental Planning & Habitat Protection
Bureau of Wildlife Habitat Management
Phone: 717-787-4250, Extension 3128
Fax: 717-787-6957
E-mail: Olbraun@pa.gov

A PNHP Partner



OAB/oab

cc: Schnupp
Brauning
Turner
Librandi Mumma
Figured
Wenner
File

*Leidy South Project
PA DEP Section 401 Water Quality Certification Application
Transcontinental Gas Pipe Line Company, LLC*

PENNSYLVANIA FISH AND BOAT COMMISSION



Pennsylvania Fish & Boat Commission

Division of Environmental Services

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

November 20, 2018

IN REPLY REFER TO
SIR# 50327

WHM Consulting, Inc.
Kevin Clark
2525 Green Tech Drive
State College, Pennsylvania 16803

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 670193_1
Leidy South Project
CLINTON County: - COLUMBIA County: - LUZERNE County: - LYCOMING County:
- SCHUYLKILL County:**

Dear Kevin Clark:

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

Timber Rattlesnake (*Crotalus horridus*, Species of Special Concern)

Timber Rattlesnakes occur in the forested, mountainous regions of the Commonwealth. They prefer forested areas to forage for small mammals (e.g., mice and chipmunks) and southerly-facing slopes for hibernating and other thermoregulatory activities. The Timber Rattlesnake is threatened by habitat loss/alteration, wanton killing, and poaching.

Given the proximity of the project to known Timber Rattlesnake occurrences, we recommend that a habitat assessment be conducted in the project area by a qualified Timber Rattlesnake surveyor to determine if the project is likely to impact the species. The habitat assessment will not be necessary at all project locations included with the PNDI submission but are especially important near the Leidy Line D Hensel Replacement Project in Clinton County, the Hill Top Pipeline Loop Expansion Project in Clinton County and Potential Grass Roots Compressor Station 620-1 location in Schuylkill County. We have included a list of qualified surveyors and habitat assessment protocol for your convenience.

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

The list is not exhaustive as there may be qualified surveyors who have not asked to be placed on this list. Additionally, it is not mandatory that you use someone on this list. Should you choose to complete the habitat assessment, the qualified surveyor should submit a report to this office for review and comment. The habitat survey report should include color photographs of the project area (keyed to a site map or diagram) and a description of habitats occurring within the immediate area to be developed (including access roads), as well as the surrounding area. Potential Timber Rattlesnake critical habitat (denning/gestating areas) should be photographed and mapped accordingly. In addition, the report should also include detailed project plans and maps with a description of the proposed work (including access roads), project impacts and alternatives. Pending the review of this information, a survey targeting the presence of the Timber Rattlesnake in the project area and/or other project modifications may be requested.

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

If you have any questions regarding this review, please contact Jordan R. Allison at 814-359-5236 and refer to the SIR # 50327. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in dark ink that reads "Jordan Allison". The signature is written in a cursive, flowing style.

Jordan R. Allison, Chief
Natural Gas Section

JRA/dn

From: [Allison, Jordan](#)
To: [Kevin Clark](#)
Subject: RE: External PNDI- 019 Update (Leidy South Project)
Date: Tuesday, June 11, 2019 11:05:50 AM
Attachments: [image001.jpg](#)

Kevin,

Thank you for sending notifying us of the updated PNDI for proposed changes to the Leidy South Project. I have reviewed the updated PNDI and have no additional comments/recommendations to offer beyond what was expressed in our November 20th, 2018 letter for SIR# 50327. Should you have any additional questions, please feel free to get in touch.

Thanks,

Jordan Allison, Fisheries Biologist
Natural Gas Section
PFBC Centre Region Office
595 E Rolling Ridge DR
Bellefonte, PA 16823

814-359-5236

-The gods do not deduct from man's allotted span the hours spent in fishing-

From: Kevin Clark <kevinc@whmgroup.com>
Sent: Monday, April 15, 2019 3:27 PM
To: Allison, Jordan <jorallison@pa.gov>; Dogonniuck, Alexander <c-adogonni@pa.gov>; Braun, Olivia <olbraun@pa.gov>
Cc: Richardson, Devyn <Devyn.Richardson@williams.com>; Henry, Josh <Josh.Henry@williams.com>
Subject: [External] PNDI-670193 Update (Leidy South Project)

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

To all:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the original PNDI Online Large Project Review for the Leidy South Project (Project) submitted on October 31, 2018. This update provides additional project information and details since the previous submission. The information is attached to this email, as well as uploaded on the PNDI website. Should the Project, as presented, indicate the need for additional species-specific field studies or indicate other Project

considerations, please provide a response outlining those requirements.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to contact Devyn Richardson at (713) 215-2781 or Devyn.Richardson@Williams.com. Alternatively, you can contact me at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Kevin M. Clark | PWS
Project Manager
WHM Consulting, LLC (dba WHM Consulting, Inc)
(814) 689-1650 ext. 105



*Leidy South Project
PA DEP Section 401 Water Quality Certification Application
Transcontinental Gas Pipe Line Company, LLC*

**TIMBER RATTLESNAKE PHASE I HABITAT
ASSESSMENT AND PHASE II PRESENCE/
ABSENCE DENNING SURVEY REPORT
(PRIVILEGED)**



Pennsylvania Fish & Boat Commission

Division of Environmental Services

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

August 21, 2019

IN REPLY REFER TO
SIR# 50327

WHM Consulting, Inc.
Kevin Clark
2525 Green Tech Drive
State College, Pennsylvania 16803

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 670193_1
Leidy South Project
CLINTON County: - COLUMBIA County: - LUZERNE County: - LYCOMING County:
- SCHUYLKILL County:**

Dear Kevin Clark:

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

We have received the results of your Phase I Timber Rattlesnake Habitat Assessment and Phase II Denning which were completed in April and May of this year. Your staff confirmed the presence of Timber Rattlesnakes at six den/gestation sites located on or adjacent to the limit of disturbance for the Hensel Replacement portion of the project and three sites for the Hill Top Loop portion. Of the nine confirmed denning sites all but one, the Hilltop Loop habitat area eight, were able to be avoided. Additionally, impacts to potential and occupied gestation habitat are proposed at multiple locations along the Hensel Replacement portion of the project. No impacts to these habitats are proposed for the Hilltop Loop. In order to avoid impacts to denning Timber Rattlesnakes and mitigate impacts to potential and occupied gestation habitat, the commission recommends the following avoidance measures:

- 1.) All blasting within 50 feet of confirmed denning habitats should occur between May 15th and October 1st to avoid impacts to snakes occupying these sites. If blasting is proposed during this timeframe within 300 feet of a den site, please consult with this office prior to doing so.

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

- 2.) We recommend that gestation habitat impacted during construction be recreated in accordance with our "Guidelines for Timber Rattlesnake Habitat creation". I have attached a copy of this document for your convenience.

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

If you have any questions regarding this review, please contact Jordan R. Allison at 814-359-5236 and refer to the SIR # 50327. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in dark ink that reads "Jordan Allison". The signature is written in a cursive, flowing style.

Jordan R. Allison, Chief
Natural Gas Section

JRA/dn



Pennsylvania Fish & Boat Commission

Division of Environmental Services
Natural Gas Section
595 E Rolling Ridge Dr.
Bellefonte, PA 16823

August 26, 2019

IN REPLY REFER TO
SIR# 50327

WHM Consulting, Inc.
Kevin Clark
2525 Green Tech Drive
State College, Pennsylvania 16803

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 670193_4
Leidy South Project
CLINTON County: - COLUMBIA County: - LUZERNE County: - LYCOMING County:
- SCHUYLKILL County:

Dear Kevin Clark:

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

According to this submission and our records there have been minor changes in the project since your last submission. However, the Commission’s comments regarding potential impacts to rare, candidate, threatened, or endangered species under our jurisdiction, as detailed in our letter of August 21st, 2019 for SIR# 50327 , remain unchanged.

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

Our Mission:

www.fish.state.pa.us

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

If you have any questions regarding this review, please contact Jordan R. Allison at 814-359-5236 and refer to the SIR # 50327. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Jordan Allison". The signature is written in a cursive, flowing style.

Jordan R. Allison, Chief
Natural Gas Section

JRA/dn



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

May 7, 2020

**Re: Update PNDI Search ID: PNDI-670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

To Whom it May Concern:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), PNDI-670193. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were include in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to rare, candidate, threatened or endangered species.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (412) 713-0485 or contact me via e-mail at josh.henry@williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

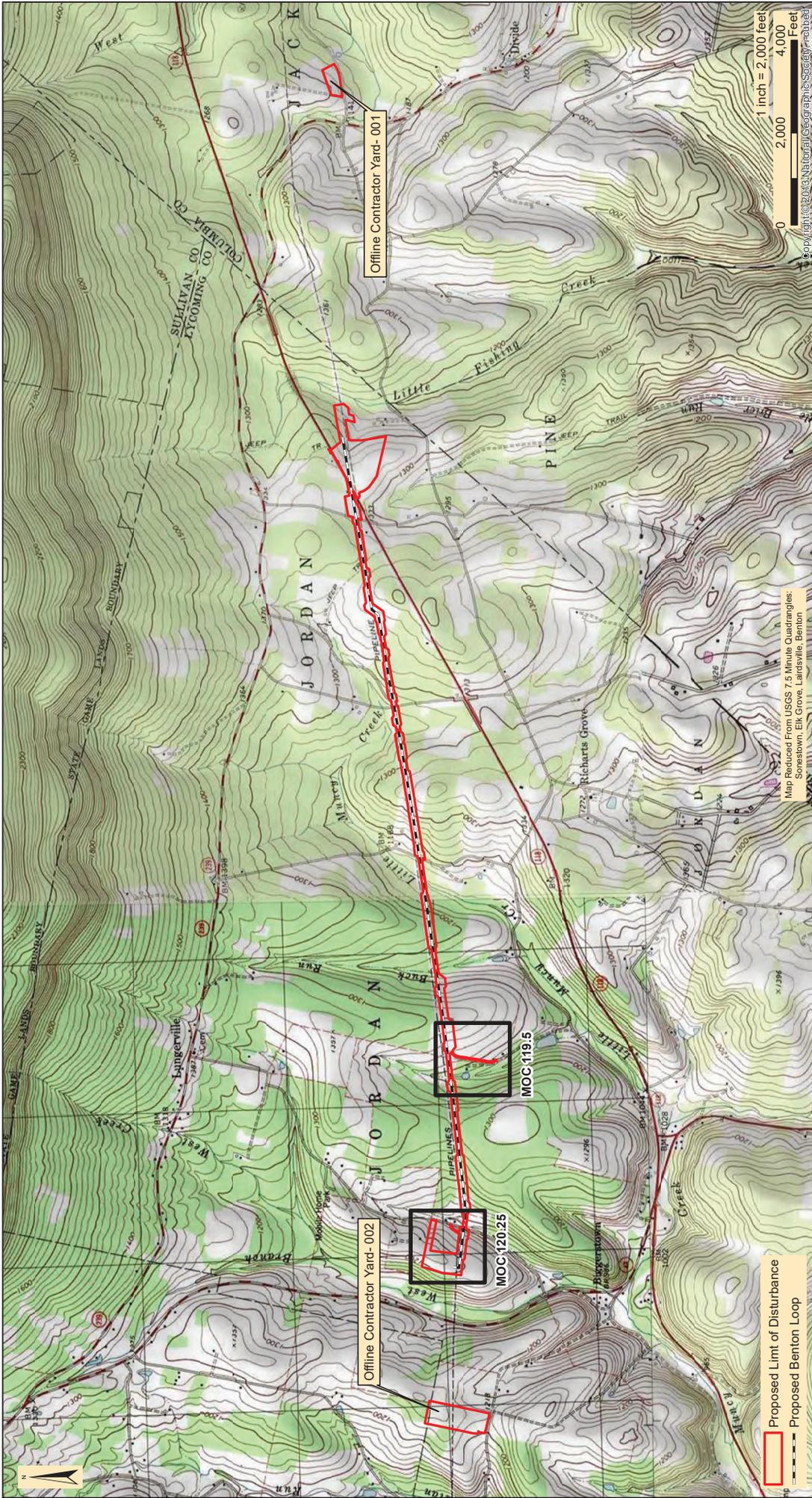
Josh Henry
Environmental Specialist

Attachments: Attachment A: Mapping

cc: Shauna Akers, Transco
Kevin Clark, WHM Consulting, Inc.

ATTACHMENT A
MAPPING

BENTON LOOP



Date: 5/4/2020
 WHM DRAWING NUMBER: WILLIAMS202B003
 Drawn By: FTN
 Figure Number: 1

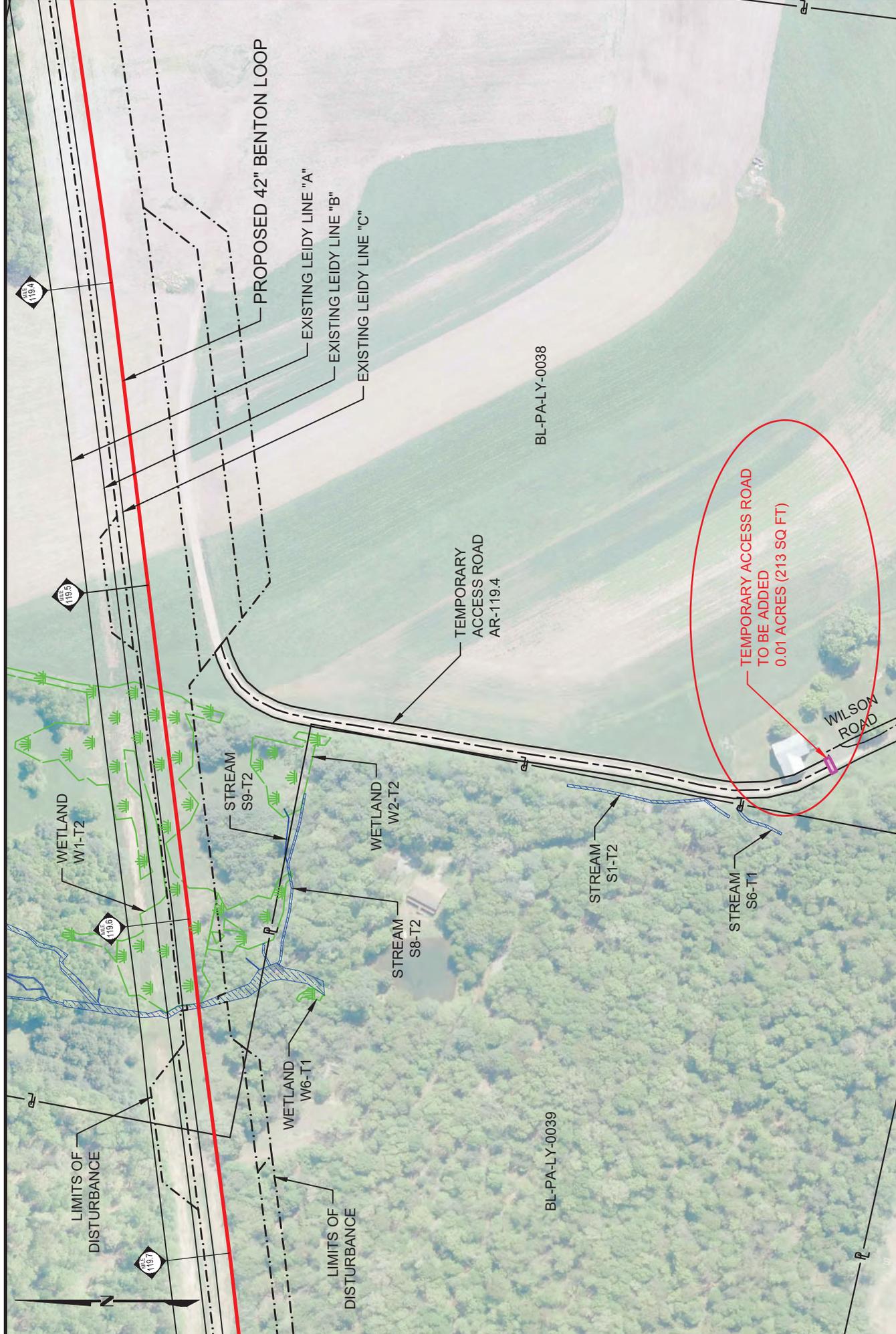
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Map Reduced From USGS 7.5 Minute Quadrangles:
 Sonestown, Elk Grove, Lairdsville, Benton

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 LEIDY SOUTH PROJECT
 LEIDY LINE D 42" BENTON LOOP
 PROJECT LOCATION MAP

LYCOMING & COLUMBIA COUNTIES
 PENNSYLVANIA

WHM
 designs, permits, resolutions
 consulting, INC.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

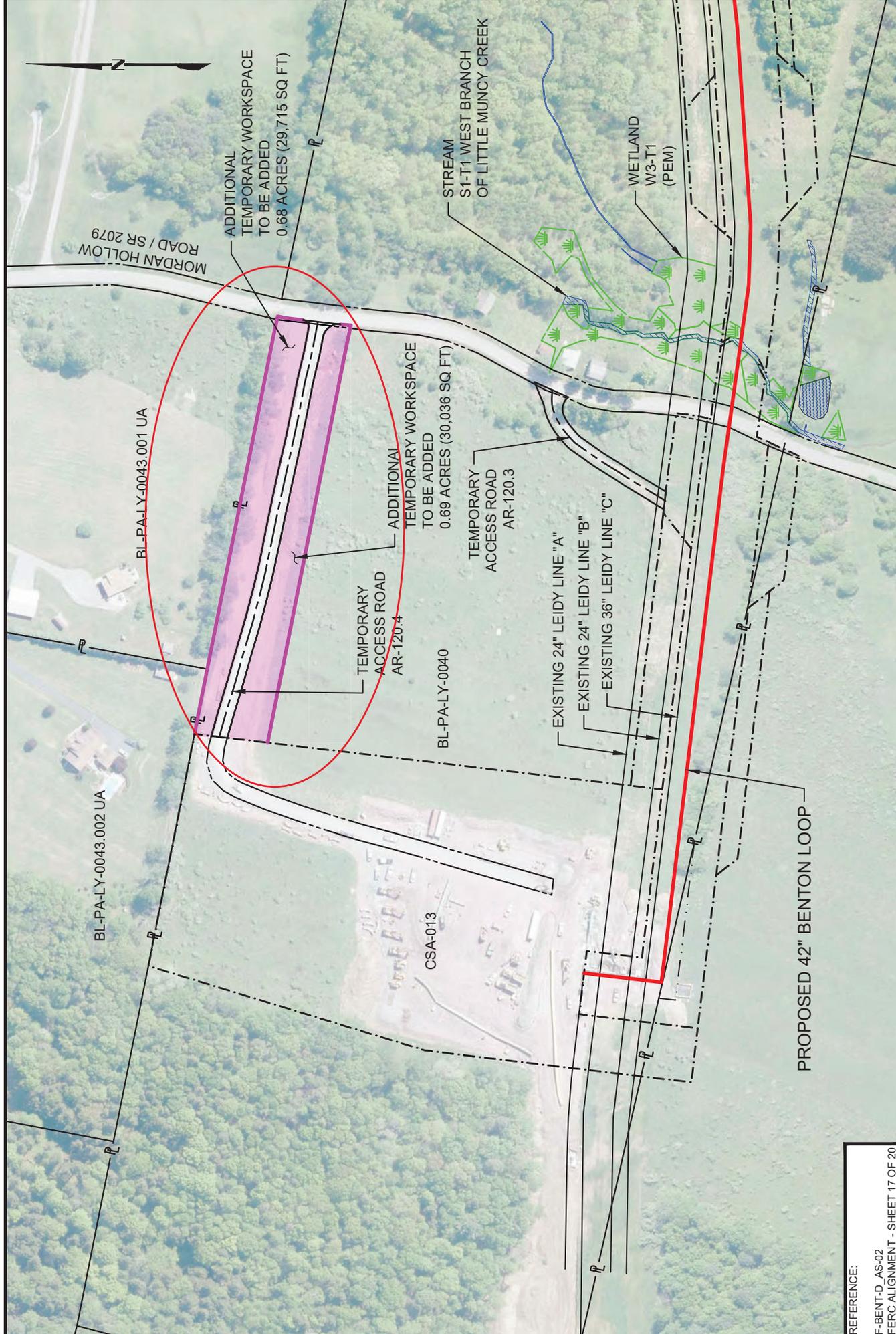


MOC-BENT-AR 119.5

LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 42" BENTON LOOP
 WORKSPACE CHANGE
 MOC - 119.5



- LEGEND:
- PROPOSED 42" BENTON LOOP
 - EXISTING PIPELINES
 - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM CROSSING
 - WETLAND AREA



MOC-BENT-120_25

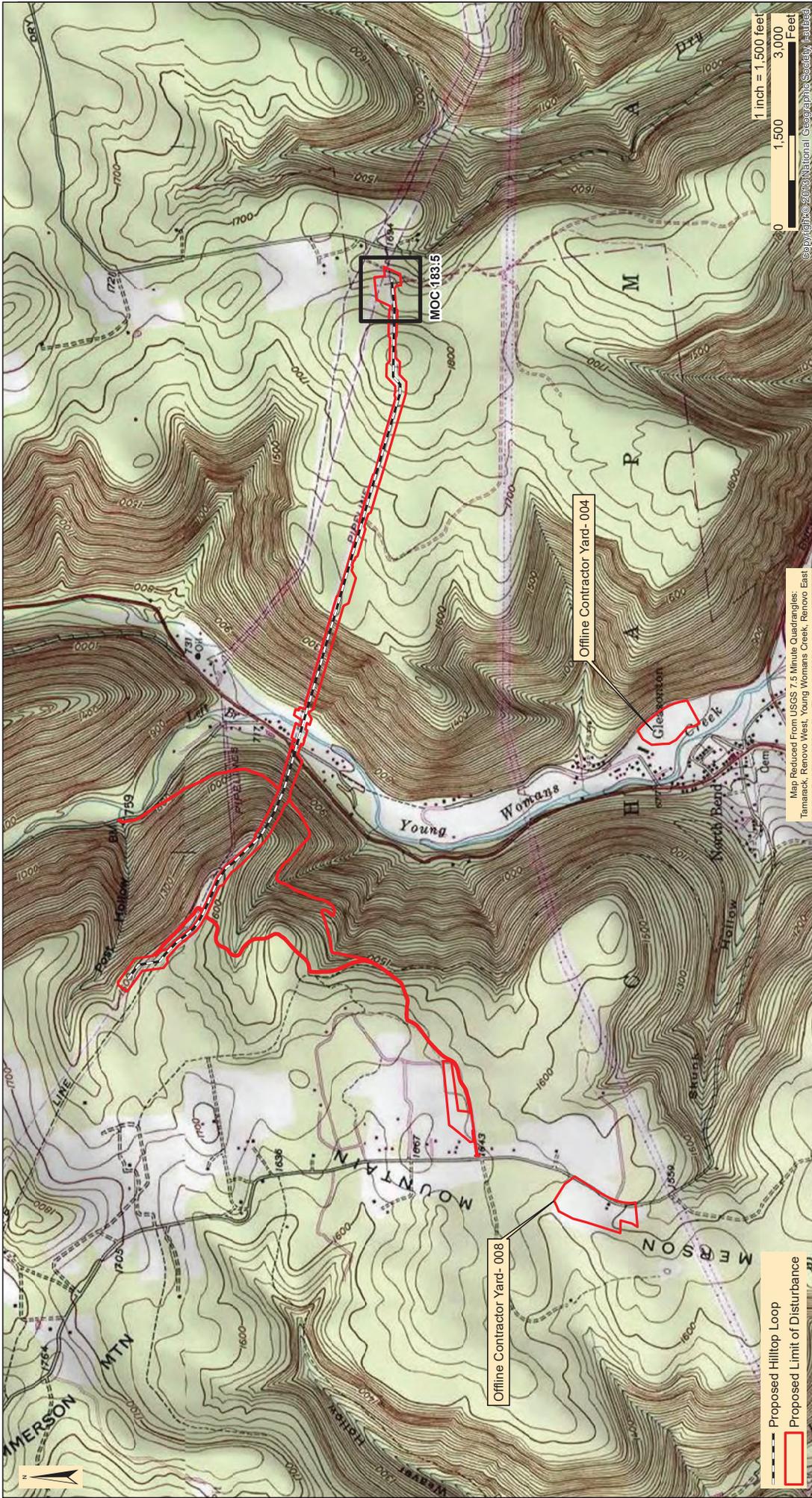
LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 42" BENTON LOOP
 WORKSPACE CHANGE
 MOC - 120.25



REFERENCE:
 F-BENT-D_AS-02
 FERC ALIGNMENT - SHEET 17 OF 20

- LEGEND:
- PROPOSED 42" BENTON LOOP
 - EXISTING PIPELINES
 - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM
 - WETLAND AREA

HILLTOP LOOP



1 inch = 1,500 feet
 0 1,500 3,000 Feet
 Copyright © 2013 National Geographic Society, Inc.

Map Reduced From USGS 7.5 Minute Quadrangles:
 Tamaack, Remoro West, Young Woman's Creek, Remoro East

--- Proposed Hilltop Loop
 [Red Box] Proposed Limit of Disturbance

Date: 5/4/2020
 WHM DRAWING NUMBER: WILLIAMS201B002
 Drawn By: FTN
 Figure Number: 2-1

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

LEIDY LINE D 36" HILLTOP LOOP
PROJECT LOCATION MAP

WHM designs, permits, resolutions | **consulting, inc.**
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

CHAPMAN TOWNSHIP CLINTON COUNTY PENNSYLVANIA



MOC-HILL-183_5

LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 36" HILLTOP LOOP
 WORKSPACE CHANGE
 MOC 183.5



- LEGEND:
- PROPOSED 36" HILLTOP LOOP
 - EXISTING PIPELINES
 - - - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM
 - WETLAND AREA

TEMPORARY WORKSPACE TO BE REMOVED 0.03 ACRES (1,098 SQ. FT.)

HL-PA-CL-0001

WETLAND W1-T8 (PEM)

HL-PA-CL-0003

LIMITS OF DISTURBANCE

WETLAND W3-T7-HL (PEM)

MILE 183.6

EXISTING 24" LEIDY LINE "A"

EXISTING 24" LEIDY LINE "B"

EXISTING 30" LEIDY LINE "C"

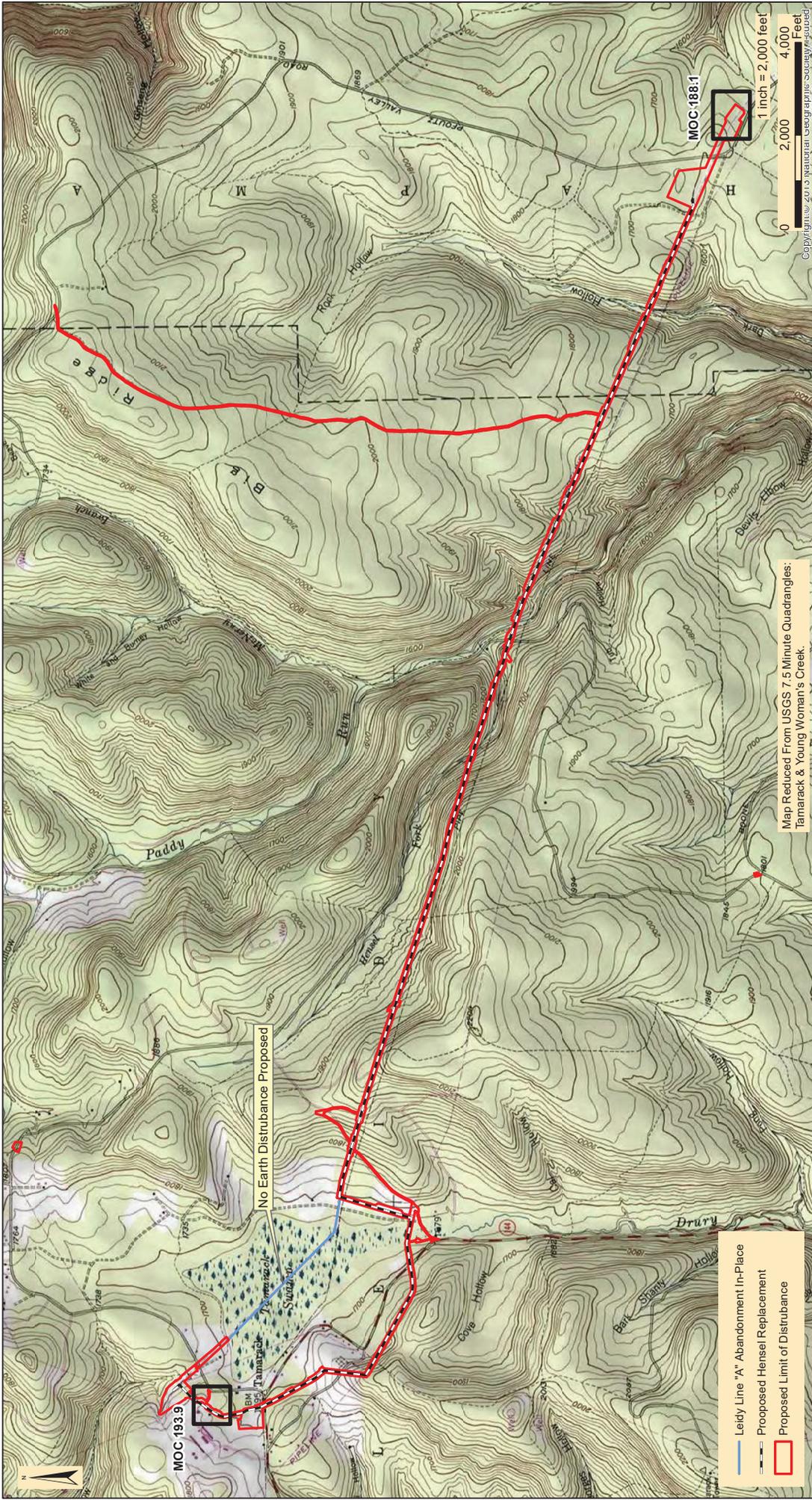
LIMITS OF DISTURBANCE

TEMPORARY WORKSPACE TO BE ADDED 0.03 ACRES (1,098 SQ. FT.)

STREAM S1-T8-HL

PROPOSED 36" HILLTOP LOOP

HENSEL REPLACEMENT



Date: 5/4/2020
 WHM DRAWING NUMBER: WILLIAMS202B001
 Drawn By: FTN
 Figure Number: 1-1

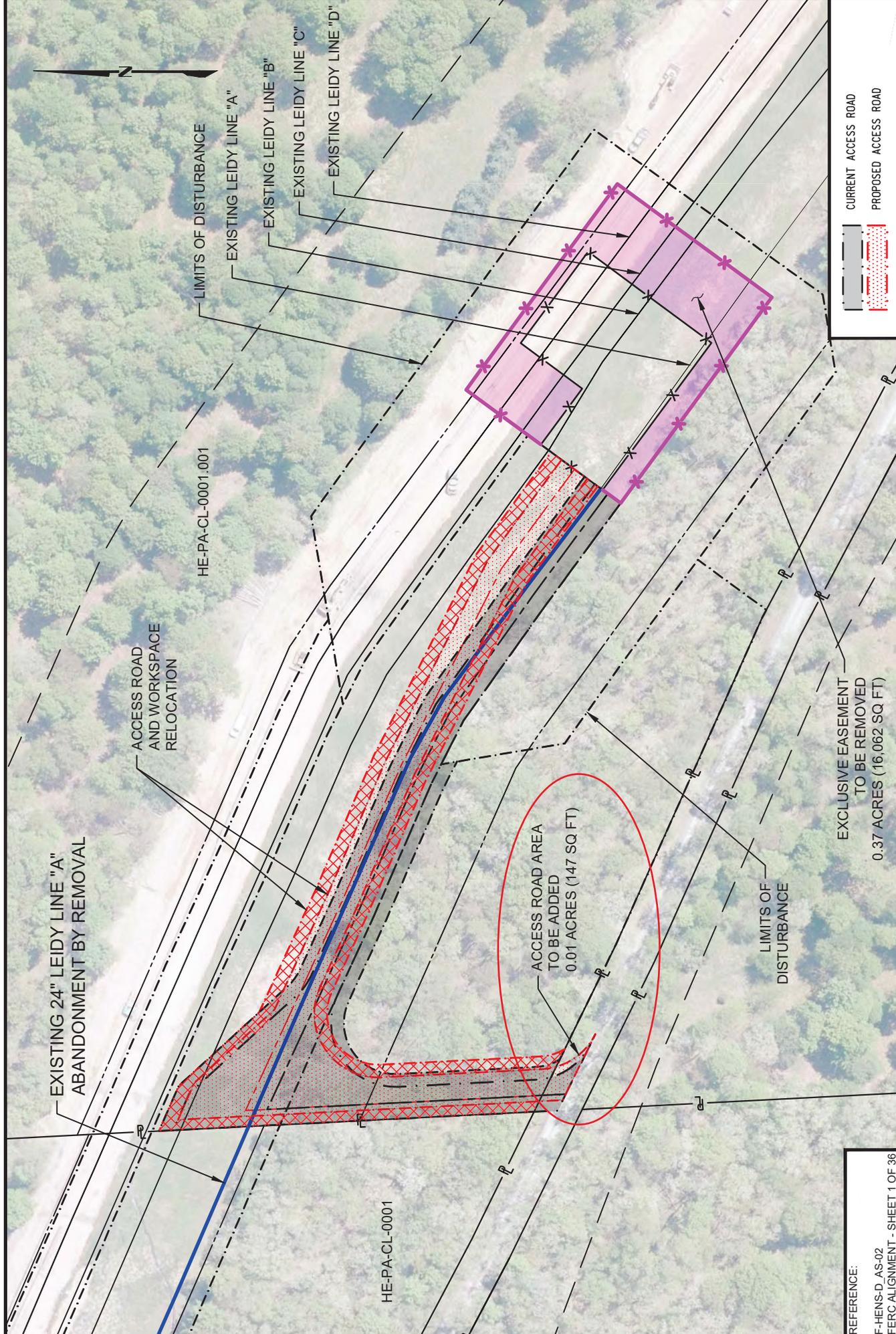
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 LEIDY SOUTH PROJECT

LEIDY LINE D 36" HENSEL REPLACEMENT
 PROJECT LOCATION MAP

CLINTON COUNTY
 LEIDY & CHAPMAN TOWNSHIP



designs, permits, resolutions | consulting, INC.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1587



REV 2
MOC-HENS-188_1

LEIDY SOUTH PROJECT
MEMORANDUM OF CHANGE
36" HENSEL REPLACEMENT
EXCLUSIVE EASEMENT & ACCESS ROAD CHANGE
MOC 188.1

SCALE IN FEET

100 0 100

SHEET 1 OF 1
10/14/2019

REFERENCE:
F-HENS-D_AS-02
FERC ALIGNMENT - SHEET 1 OF 36

LEGEND:

- EXISTING 24" LEIDY LINE "A"
- EXISTING PIPELINES
- LIMITS OF DISTURBANCE
- PROPERTY LINE
- STREAM
- WETLAND AREA

CURRENT ACCESS ROAD
PROPOSED ACCESS ROAD

HE-PA-CL-0001

EXCLUSIVE EASEMENT
TO BE REMOVED
0.37 ACRES (16,062 SQ FT)

ACCESS ROAD AREA
TO BE ADDED
0.01 ACRES (147 SQ FT)

ACCESS ROAD
AND WORKSPACE
RELOCATION

EXISTING 24" LEIDY LINE "A"
ABANDONMENT BY REMOVAL

LIMITS OF DISTURBANCE

EXISTING LEIDY LINE "A"

EXISTING LEIDY LINE "B"

EXISTING LEIDY LINE "C"

EXISTING LEIDY LINE "D"

HE-PA-CL-0001.001

LIMITS OF
DISTURBANCE



Pennsylvania Fish & Boat Commission

Division of Environmental Services

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

May 11, 2020

IN REPLY REFER TO

SIR# 50327

WHM Consulting, Inc.
Kevin Clark
2525 Green Tech Drive
State College, Pennsylvania 16803

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 670193_5
Leidy South Project
CLINTON County: - COLUMBIA County: - LUZERNE County: - LYCOMING County:
- SCHUYLKILL County:**

Dear Kevin Clark:

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

According to this submission and our records there have been no changes in the project or on-site biological information; therefore, the Commission’s comments regarding potential impacts to rare, candidate, threatened, or endangered species under our jurisdiction, as detailed in our letter of _____ for SIR# , remain unchanged.

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

Our Mission:

www.fish.state.pa.us

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

If you have any questions regarding this review, please contact Jordan R. Allison at 814-359-5236 and refer to the SIR # 50327. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Jordan Allison". The signature is written in a cursive, flowing style.

Jordan R. Allison, Chief
Natural Gas Section

JRA/dn

*Leidy South Project
PA DEP Section 401 Water Quality Certification Application
Transcontinental Gas Pipe Line Company, LLC*

UNITED STATES FISH AND WILDLIFE SERVICE



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

October 31, 2018

Pamela Shellenberger | Fish & Wildlife Biologist
Endangered Species Program
110 Radnor Rd; Suite 101
State College, PA 16801

**Re: PNDI Project Submission for Environmental Review
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project
PNDI Search ID: PNDI-670193**

Dear Ms. Shellenberger:

Transcontinental Gas Pipe Line Company, LLC (Transco) is initiating permitting activities for the proposed Leidy South Project (Project) along Transco's existing natural gas transmission system. The Project is an expansion of Transco's system designed to provide firm transportation capacity of 580,000 dekatherms per day (Dth/d) from northern and western Pennsylvania to Transco's River Road interconnect in Lancaster County, Pennsylvania. The target in-service date is December 1, 2021. The Project consists of the following primary components:

Leidy Segments

Table 1 Leidy Segment - Pipeline Facilities			
Facility Type	Township	County	Length (miles)
Leidy Line D Hensel Replacement (L188.51 to L194.00)			
36-inch pipeline	Chapman & Leidy	Clinton	6.09
Leidy Line D Hilltop Loop (L183.55 to L186.01)			
36-inch pipeline	Chapman	Clinton	2.46
Leidy Line D Benton Loop (L116.87 to L120.42)			
42-inch pipeline	Jackson	Lycoming	3.55
Project Total			11.78

The Pipeline Facilities would be co-located within/adjacent to the existing Transco right-of-way (ROW), to the extent possible. The temporary and/or permanent ROW will need to be widened at varying widths to accommodate the construction of the loops and replacement. Mapping depicting the location of the proposed Hensel Replacement, Hilltop Loop, and Benton Loop is provided in Attachment B.

Central Penn North

Table 2 Central Penn North – New Compressor Station & Modification to Existing Compressor Station				
Facility ID	Modifications	Township	County	State
Existing Compressor Station 605*	Uprate the two (2) existing electric motor-driven (EMDs) from 15,000 HP to 21,000 HP each	Clinton	Wyoming	PA
New Grassroots Compressor Station 607	Install two (2) Titan 130 units (23,465 nominal HP at ISO conditions each, 46,930 HP total)	TBD	Luzerne	PA
* no earth disturbance necessary				

Transco is currently assessing sites for Grassroots Compressor Station 607. Sites of interest are located in Luzerne County and consist of two options: 607 Hayfield and 607 Maransky. Modifications at Existing Compressor Station 605 will include additional horsepower/compression but will not involve earth disturbance. Mapping depicting the locations of the property boundaries of the proposed Compressor Station 607 options as well as the location of Compressor Station 605 is provided in Attachment B.

Central Penn South

Table 3 Central Penn South – New Compressor Station & Modification to Existing Compressor Station				
Facility ID	Facility Type	Township	County	State
Existing Compressor Station 610	Install one (1) Titan 250 Unit (31,871 nominal HP at ISO conditions), Re-wheel and uprate two (2) existing EMD units from 20,000 to 21,000 HP, and add unit cooling	Orange	Columbia	PA
New Grassroots Compressor Station 620	Install one (1) Titan 250 Unit (31,871 nominal HP at ISO conditions)	TBD	Schuylkill	PA

Transco is currently assessing sites for Grassroots Compressor Station 620. Sites of interest are located in Schuylkill County and consist of two options: 620-1 and 620-5-1. Modification to Existing Compressor Station 610 will include the installation of additional horsepower/compression and other related modifications which may require additional land disturbance and workspace outside of the existing compressor station footprint. Mapping depicting the locations of the property boundaries of the proposed Compressor Station 620 options, and the approximate location of Existing Compressor Station 610 is provided in Attachment B.

Field surveys have initiated but have not yet been completed for the Project. Temporary and permanent workspaces (e.g. disturbance areas) have not been fully defined at this time. During and following field surveys, the proposed pipeline route and other disturbance areas are subject to refinements in order to avoid various natural resource and land use features along with engineering design requirements. Because the Project design has not been finalized, estimated areas of impact have not been provided on the PNDI Manual Project Submission Form provided in Attachment A.

This correspondence is intended to initiate consultation with the United States Fish and Wildlife Service regarding the presence of Threatened, Endangered, and special concern species occurring along or in the vicinity of the Project. An online PNDI review for the Project was completed on October 31, 2018, and is provided in Attachment C.

Should the Project, as presented, indicate the need for additional species-specific field studies or indicate other Project considerations, please provide a response outlining those requirements.

If you have any questions regarding this correspondence and information request, or require additional Project information, please do not hesitate to call me at (713) 215-2781 or contact me via e-mail at Devyn.Richardson@Williams.com. Alternatively, you can contact Kevin Clark, Project Manager at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroupp.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC



Devyn Richardson
Sr. Environmental Project Manager

Attachments: Attachment A: PNDI Manual Project Submission Form
 Attachment B: Project Location Maps
 Attachment C: PNDI Search ID: PNDI-670193

cc: Josh Henry, Transco
 Kevin Clark, WHM Consulting, Inc.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

March 5, 2019

Devyn Richardson
Transcontinental Gas Pipe Line Company, L.L.C.
2800 Post Oak Boulevard (77-56)
P.O. Box 1396
Houston, TX 77251-1396

RE: USFWS Project #2019-0122
PNDI Receipt #670193

Dear Mr. Richardson:

Thank you for your letter dated October 31, 2018, requesting information about federally listed and proposed endangered and threatened species within the area affected by the Transcontinental Gas Pipe Line Company's proposed Leidy South project, portions of which are Clinton, Columbia, Luzern, Lycoming, Schuylkill, and Wyoming Counties, Pennsylvania. The proposed project is located within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered and the northern long-eared bat (*Myotis septentrionalis*), a species that is federally listed as threatened. The project is also within the known range of the northeastern bulrush (*Scirpus ancistrochaetus*), a federally listed, endangered plant.

The proposed project involves infrastructure improvement, construction, or modification along an existing gas pipeline, including seven separate facilities (three sections of pipeline replacement or loop sections comprising approximately 11.78 miles and 4 compressor stations). Project design is preliminary and no information is provided regarding possible habitat effects but you do commit, to the extent possible, that all features will be constructed in the right-of-way of the existing pipeline although widening may be required in some locations.

The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

Indiana bat and Northern long-eared bat

Indiana bats and northern long-eared bats hibernate in caves and mines during the winter months (November through March), and use a variety of upland, wetland and riparian habitats during the

spring, summer and fall. Both bat species usually roost in dead or living trees with exfoliating bark, or living or dead trees with crevices or cavities. The female bats form nursery colonies under the exfoliating bark of dead or living trees, such as shagbark hickory, in upland or riparian areas. However, a variety of tree species such as black birch, red and white oak, and sugar maple are also used. Land-clearing, especially of forested areas, may adversely affect Indiana bats and northern long-eared bats by killing, injuring or harassing roosting bats, and by removing or reducing the quality of foraging and roosting habitat.

Proposed pipeline sections in Clinton County are in proximity to several northern long-eared bat captures. On February 16, 2016, a special conservation rule (i.e., 4(d) rule) was adopted that tailors protections for the northern long-eared bat under the Endangered Species Act (81 FR 1900). Incidental take that occurs as a result of tree removal that is not within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet from a known, occupied maternity roost tree is not prohibited in accordance with the 4(d) rule.

While take that may occur under the provisions of the 4(d) rule is not prohibited under the Act, when tree removal occurs throughout northern long-eared bat range, and the project is authorized, funded, or permitted by a Federal agency, consultation under section 7 of the Act is required. The Service completed a nationwide biological opinion that fulfills this requirement, provided the conditions of the 4(d) rule are implemented. More information about the programmatic consultation and the streamlined procedures to meet this requirement are detailed at: <http://www.fws.gov/midwest/endangered/mammals/nleb/>.

Northeastern bulrush

Potential habitat for this species could be affected if project implementation will directly or indirectly affect wetlands. The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

The Fish and Wildlife Service recommends that a qualified botanist with field experience in the identification of this species conduct a thorough survey¹ of all potentially suitable wetland habitat within any proposed project areas to determine the presence of the northeastern bulrush. Surveys for this species should be conducted between June 1 and September 30, when the flowering/fruitleting culm is present. A survey report should be submitted to the Service for review and comment. A list of botanists skilled in the location and identification of the northeastern bulrush is available here: https://www.fws.gov/northeast/pafo/pdf/Bulrush_qualified_10302018.pdf.

¹ When suitable habitat for a listed species is present and effects to the species are reasonably foreseeable, the Service recommends species surveys to enable fact-specific analysis of effects and fact-specific development of conservation measures. Rather than conduct habitat and/or species surveys, a project proponent and action agency may choose to assume presence of the species. However, assuming presence usually makes the analysis of effects significantly more difficult (because the specific nature of the species' presence is not known) and can lead to the incorporation of conservation measures that might otherwise not be needed if surveys were to be conducted and the species were not to be found.

Submission of more detailed project information to this office, particularly regarding the extent of forest habitat removal and wetland disturbance, will be necessary in order to determine whether either bat species or northeastern bulrush may be affected, and whether surveys or further consultation is necessary.

This response relates only to endangered and threatened species under our jurisdiction, based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

Please contact Robert Anderson of this office at (814) 234-4090 if you have any questions or require further assistance regarding this matter.

Sincerely,

A handwritten signature in black ink that reads "Sonja Jahrsdoerfer". The signature is written in a cursive style with a large, prominent 'S' at the beginning.

Sonja Jahrsdoerfer
Project Leader



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

April 15, 2019

Robert Anderson | Supervisory Fish and Wildlife Biologist
United States Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801

**Re: Update USFWS Project # 2019-0122; PNDI Receipt#670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

Mr. Anderson,

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the original PNDI Online Large Project Review for the Leidy South Project (Project) submitted on October 31, 2018. In respect to the overall Project scope, one clarification has been made for the Hensel Replacement; which now includes the abandonment of 3.4 miles of the existing 23.375-inch Leidy Line A. Transco is also evaluating several site alternatives for Compressor Station 620 (Options A, B, C & G). Only one "Option" for Compressor Stations 607 & 620 will be selected.

This update provides additional details since the previous submission, including the information requested in the March 5, 2019, USFWS correspondence letter pertaining to forest habitat removal and wetland disturbance. In addition, a summary of the northern long-eared bat (NLEB) data from the Atlantic Sunrise (ASR) Project is being provided as ASR and the proposed Project have overlapping workspace. As part of ASR, additional mist net surveys were conducted within the vicinity of the proposed Project area.

Project Updates

The following Project information, which summarizes updates since the previous submission, is provided to facilitate your review:

Leidy Segments – Pipeline Facilities

- Defined workspaces associated with pipeline installation;
 - Benton Loop
 - Includes both the proposed alternative and two route alternatives to the south of the proposed pipeline.
 - Hilltop Loop

- Includes the proposed alternative.
- Hensel Replacement
 - Includes the proposed alternative, alternative locations for the valve placement, abandonment workspace, and the alternatives associated with a potential Horizontal Directional Drill through the Tamarack Swamp.
- Contractor Staging Area locations; and,
- Access roads to be utilized for the project.

Central Penn North

- Renamed Potential Compressor Station 607 Maransky as 607 Option A and 607 Hayfield as 607 Option B.

Central Penn South

- Renamed Potential Compressor Station 620-1 as 620 Option A;
- Removed Potential Compressor Station 620-5-1 from consideration; and,
- Added Potential Compressor Station 620 Options B, C & G.

Data Request – Forest Habitat Removal and Wetland Disturbance

Forested habitat removal estimates are based on surveyed treeline data for the Benton & Hilltop Loops. For all other facilities, the most recent aerial imagery was utilized. Wetland disturbance estimates are based on surveyed delineation data for the Benton Loop and CS 607 – Option B. For all other facilities, preliminary wetlands data was based on a desktop evaluation / remote sensing, and/or, where land permission has been granted, a field investigation during the non-growing season with frozen soils present.

The below summary table outlines estimated acreages of forest habitat removal and wetland disturbances based on the proposed Limits of Disturbance (LOD) for Benton Loop, Hilltop Loop, Hensel Replacement, Compressor Station 607 Option A, Compressor Station 620 Option A and Compressor Station 610. For Compressor Station 607 Option B and Compressor Station 620 Options B, C & G preliminary workspaces have not been developed to date; however, forest habitat removal and wetland disturbance will be minimized to the extent practical.

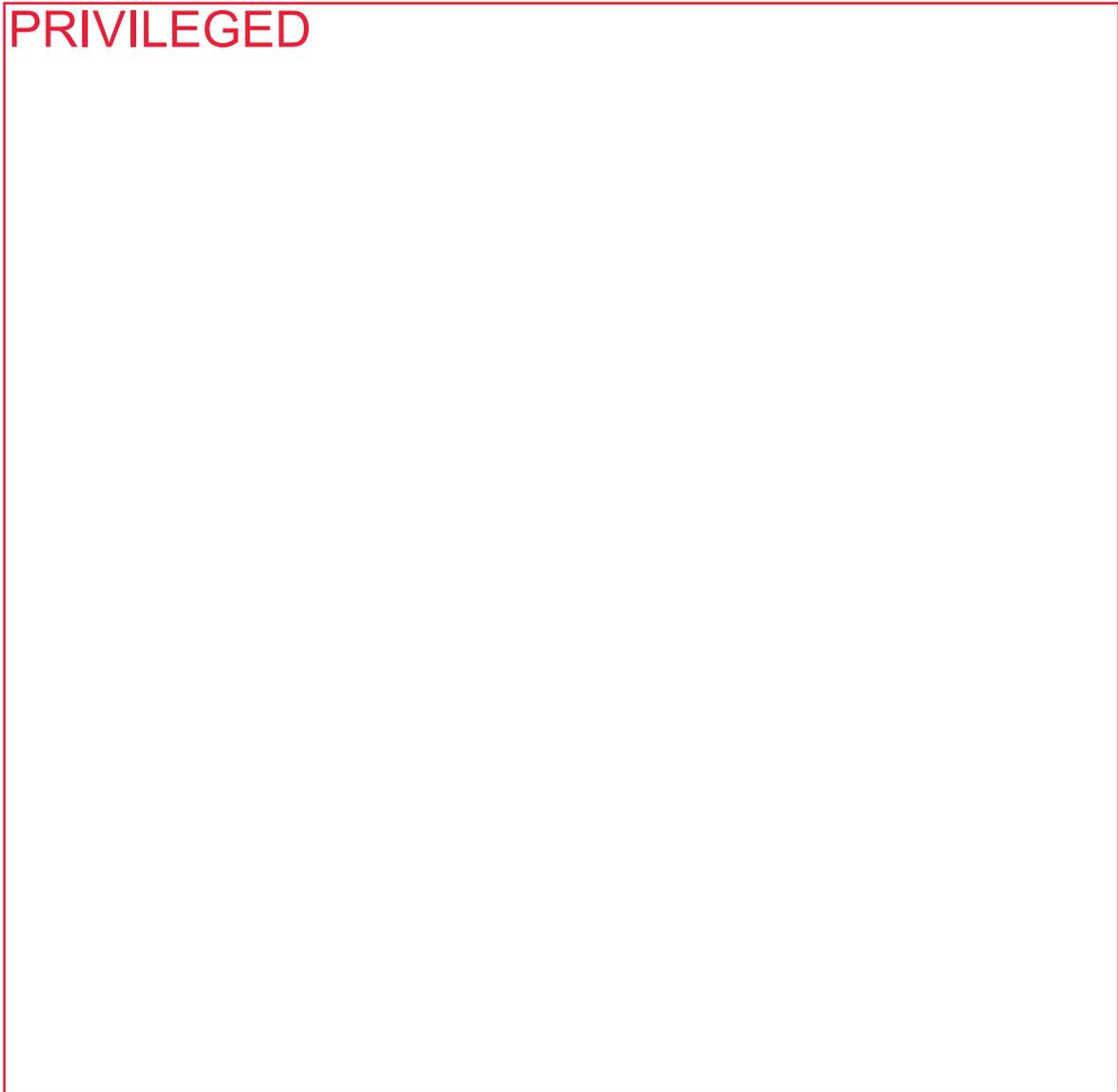
Table 1 - Summary of Estimated Forest Removal & Wetland Disturbance

PROPOSED FACILITIES	COUNTY	FOREST HABITAT REMOVAL (AC)¹	WETLAND IMPACT (AC)²
Benton Loop	Lycoming & Columbia	17.7	1.88
Hilltop Loop	Clinton	27.3	<2
Hensel Replacement	Clinton	22.5	<3
CS 605 ⁴	Wyoming	0	0
CS 607 – Option A ³	Luzerne	<2	<0.5
CS 607 – Option B ³	Luzerne	30 – 40	+/- 1
CS 610	Columbia	0	0

CS 620 – Option A ³	Schuylkill	0.55	0.52
CS 620 – Option B ³	Schuylkill	<1	<1
CS 620 – Option C ³	Schuylkill	<5	<1
CS 620 – Option G ³	Schuylkill	30 – 40	+/- 1
Notes:			
1. Forested habitat removal estimates are based on surveyed treeline data for the Benton & Hilltop Loops. For all other facilities, the most recent aerial imagery was utilized			
2. Wetland disturbance estimates are based on surveyed delineation data for the Benton Loop and CS 607 – Option B. For all other facilities, preliminary wetlands data was based on a desktop evaluation / remote sensing, and/or a field investigation during the non-growing season with frozen soils (where land permission has been granted).			
3. Only one "Option" for Compressor Stations 607 & 620 will be selected.			
4. No earth disturbance proposed at CS 605.			

Northern Long Eared Bat (NLEB) Data from Atlantic Sunrise (ASR) Project

PRIVILEGED



Updated mapping is provided in Attachment A. Also, mapping and Google Earth kmz files have been uploaded on the PNDI website. Should the Project, as presented, indicate the need for additional species-specific field studies or indicate other Project considerations, please provide a response outlining those requirements. If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (713) 215-2781 or contact me via e-mail at Devyn.Richardson@Williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC



Devyn Richardson
Sr. Environmental Project Manager

Attachments: Attachment A: Project Location Maps

cc: Olivia Braun, Pennsylvania Game Commission
 Josh Henry, Transco
 Kevin Clark, WHM Consulting, Inc.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

June 24, 2019

Devyn Richardson
Williams Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Blvd (77056)
P.O. Box 1396
Houston, TX 77251-1396

RE: USFWS Project #2019-0122

Dear Ms. Richardson:

Thank you for your letter of April 15, 2019, regarding information about federally listed and proposed endangered and threatened species within the area affected by Williams Transcontinental Gas Pipe Line Company, LLC's, updates to the Leidy South project that encompasses: Benton Loop, Lycoming and Columbia Counties; Hilltop Loop, Clinton County; Hensel Replacement, Clinton County; Compressor State 605, Wyoming County; Compressor Station 607, Luzerne County (2 potential options being evaluated); Compressor Station 610, Columbia County; and Compressor Station 620, Schuylkill County (4 options being evaluated). The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et se* .) to ensure the protection of endangered and threatened species and the Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) to ensure the protection of migratory bird species.

The project description consists of updates to the previously submitted project of October 31, 2018.

Federally Listed Species

The proposed project is located within the range of the Indiana bat (*M.otis sodalis*), a species that is federally listed as endangered and the federally threatened northern long-eared bat (*M.otis septentrionalis*). Additionally, the project is within the known range of the northeastern bulrush (*Scirpus ancistrochaetus*), a federally listed, endangered plant.

Bats

Tree removal

Land-clearing associated with the project may result in the death or injury of roosting Indiana bats if tree-cutting is conducted during the time of year when bats may be present. Due to the potential for Indiana bats to occur within the project area, the Service recommends that measures be implemented to avoid killing or injuring them. This can be accomplished by carrying out tree-cutting activities from November 15 to March 31, during which time bats are hibernating or concentrated near their hibernacula. This seasonal recommendation on tree cutting applies to trees that are greater than or equal to 5 inches in diameter at breast height (DBH). Where possible, retain shagbark hickory trees, dead and dying trees, and large diameter trees (greater than 12 inches DBH) to serve as roost trees for bats. Where possible, also retain forested riparian corridors and forested wetlands.

If you are unable to adopt the tree-cutting restrictions detailed above, a bat survey of the project area should be conducted between May 15 and August 15 by a qualified, Service-approved biologist using the 2019 INDIANA BAT SUMMER SURVEY GUIDELINES, which can be found at the following link: <http://www.fws.gov/northeast/pafo/endangered/surveys.html>. Survey results should be submitted to the Service for review and concurrence.

Please advise this office as to whether you intend to conduct bat surveys, or assume bats are present and implement a seasonal restriction on tree-cutting.

d ule northern long eared ats

PRIVILEGED

Federal actions that cause incidental take that is **not** prohibited under the 4(d) rule may still affect individual northern long-eared bats. Under section 7 of the Endangered Species Act, a Federal action agency (FERC) must consult with the Service if their action may affect a listed species, which includes effects to individuals. This requirement does not change when a 4(d) rule is implemented. However, for the northern long-eared bat 4(d) rule, the Service has provided a framework to streamline section 7 consultations when Federal actions may affect the northern long-eared bat but not cause prohibited take.

FERC may fulfill its project-specific section 7 responsibilities by using the Service's framework. The framework relies on the finding of a programmatic biological opinion that the Service prepared for the northern long-eared bat 4(d) rule. The Service requests FERC use the online determination key available through our Information Planning and Consultation website – IPaC (<https://ecos.fws.gov/ipac/>).

i ernacula

To determine whether this project will affect any potential Indiana bat or northern long-eared bat hibernacula, a ½-mile area around Compressor Station 620 (Options C and G) was surveyed for potential cave and mine openings by Sanders Environmental, Inc¹. Surveys were conducted on April 17, 30, and May 31, 2019, at Option G and 21 openings were considered potential habitat. Surveys were conducted at Option C on June 3, 2019, and no potential hibernacula were identified.

On May 30, 2019, Pam Shellenberger, of my office, met with your company, WHM, FERC, Pennsylvania Game Commission (PGC), and Sanders Environmental Inc., to discuss Option G. During that time, the Service recommended that impacts to the portals and the area in the immediate vicinity of these openings be avoided. However, if avoidance is not feasible, these portals should be surveyed by a qualified bat surveyor. Surveys should be carried out in accordance with survey protocols and a copy of the survey results should be submitted to the Service and the PGC for review and concurrence. If surveys cannot be conducted, another option is to assume presence of federally listed bats in these portals and FERC would consult with the Service through Section 7 formal consultation. At this time, the company is planning to conduct fall portal surveys.

Prior to conducting any survey, the PGC should be contacted to determine whether or not they have surveyed the cave/mine in the past. If adequate surveys have been conducted in the recent past, this may preclude the need to conduct additional surveys.

Should Indiana bats or northern long-eared bats be found during any survey, further consultation with the Service will be necessary, including the submission of detailed project plans, and an analysis of alternatives to avoid and minimize adverse effects.

Northeastern bulrush

Potential habitat for this species could be affected if the project will directly or indirectly affect wetlands. The northeastern bulrush is typically found in ponds, wet depressions, shallow sinkholes, vernal pools, small emergent wetlands, or beaver-influenced wetlands. These wetlands are often located in forested areas and characterized by seasonally variable water levels.

To conserve northeastern bulrush (if present) and other wetland-dependent species of concern, project-related activities should avoid adversely affecting the surface and groundwater recharge areas. This would include establishment of 300-foot wide upland buffer areas around wetlands, as well as 50-100 foot wide buffers along waterways (perennial and intermittent rivers, streams, creeks and tributaries). When adequately vegetated, these buffers will act to filter pollutants and stabilize streambanks. Earth disturbance, spraying or tree-cutting activities (tree felling, skid

¹ Portal searches only occurred at Compressor Station 620 Options C and G due to the past mining that has occurred under and surrounding these potential sites. The Service did not recommend any other portal searches for the other options or loops in previous correspondence.

trails etc.), should not occur in these wetlands and their buffers. If these buffers are included, implementation of the proposed project is not likely to adversely affect the northeastern bulrush.

If you are unable to adopt the buffers detailed above, we recommend that a qualified botanist with field experience in the identification of this species conduct a thorough survey of all potentially suitable wetland habitat within the proposed project area to determine the presence of the northeastern bulrush before any permits are approved or earth-moving activities begin.

Surveys for this species should be conducted between June 1 and September 30, when the flowering/fruitletting culm is present. A survey report should be submitted to the Service for review and comment.

Please notify this office whether buffers will be adopted as part of this project, or alternatively if surveys will be conducted for this species.

Assessment of Risks to Migratory Birds

The Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior.

You have indicated that you plan to minimize potential impacts by scheduling construction during seasons when migratory birds are not present or nesting in the project areas. The Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented. Thank you for considering impacts to migratory birds.

To avoid potential delays in reviewing our project, please use the above referenced SWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding this matter, please contact Pamela Shellenberger of my staff at 814-206-7459.

Sincerely,



Sonja Jahrsdoerfer
Project Leader

cc: David Hanobic – FERC



August 28, 2019

Sonja Jahrsdoerfer, Project Leader
United States Department of Interior
Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, PA 16801-4850

**RE: TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC; LEIDY SOUTH PROJECT;
DCNR & USFWS BOTANICAL SURVEY REPORT; USFWS PROJECT NO. 2019-
0122; PNDI RECEIPT NO. 670193; CLINTON, LYCOMING & LUZERNE COUNTY,
PENNSYLVANIA**

Dear Ms. Jahrsdoerfer,

On behalf of Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. (Williams), WHM Consulting, Inc. (WHM) conducted Botanical Surveys associated with the Leidy South Project. Botanical surveys were conducted for the Hensel Replacement, Hilltop Loop, Benton Loop and Compressor Station 607 in Clinton, Lycoming and Luzerne Counties. The surveys were conducted between May and July of 2019.

Enclosed you will find one copy of the 2019 DCNR & USFWS Botanical Survey Report for your review. This report includes proposed avoidance and minimization measures for potential impacts associated with *Scirpus ancistrochaetus* (northeastern bulrush) that was identified outside the proposed Limit of Disturbance during the surveys. The botanical survey report also includes information on target species under the PA DCNR's jurisdiction.

If you have any questions regarding this correspondence, please do not hesitate to call me at (814) 689-1650 or contact me via e-mail at kevinc@whmgroup.com. Alternatively, you can contact Josh Henry with Transco at (412) 713-0485 or via e-mail at Josh.Henry@Williams.com.

Sincerely,

WHM Consulting, Inc.

A handwritten signature in black ink, appearing to read "Kevin Clark", is written over a light blue horizontal line.

Kevin Clark
Project Manager

cc: Josh Henry, Transco

*Mid South Project
PA D P Section Water Quality Certification Application
Transcontinental Gas Pipeline Company, Inc.*

DCNR & USFWS BOTANICAL SURVEY REPORT
(INCLUDED ABOVE UNDER DCNR COORESPONDENCE)



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, Pennsylvania 16801-4850

October 1, 2019

Kevin Clark
WHM Consulting, Inc.
2525 Green Tech Drive, Suite B
State College, PA 16803

RE: USFWS Project #2019-0122
PNDI Receipt #670193

Dear Mr. Clark:

The U.S. Fish and Wildlife Service (Service) received your survey report of August 12, 2019, regarding information about federally threatened and endangered species within the area affected by the Transcontinental Gas Pipe Line Company's proposed Leidy South project, portions of which are in Clinton, Columbia, Luzerne, Lycoming, Schuylkill, and Wyoming Counties, Pennsylvania. The proposed project is located within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered and the northern long-eared bat (*Myotis septentrionalis*), a species that is federally listed as threatened. The project is also within the known range of the northeastern bulrush (*Scirpus ancistrochaetus*), a federally listed, endangered plant.

The proposed project involves infrastructure improvement, construction, or modification along an existing gas pipeline, including seven separate facilities (three sections of pipeline replacement or loop sections comprising approximately 11.78 miles). Additional information was provided in your email of August 21, 2019, which included an updated PNDI receipt to reflect changes in the project limits of disturbance (LOD); and your email of September 30, 2019, which provided additional information on wetland impacts. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

Indiana bat and northern long-eared bat

Please see our comments regarding impacts to bats from tree removal in our letter of June 24, 2019. In addition, regarding potential impacts from compressor stations, compressor station 607 (Option B) and compressor station 620 (Options B, C, & G) outlined in previous submittals have

been removed; and the company is selecting compressor station 620 Option A, which is located in a farm field, with no wetland, stream, tree or hibernacula impacts.

Northeastern bulrush

PRIVILEGED

This response relates only to endangered and threatened species under our jurisdiction, based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

Please contact Pamela Shellenberger of this office at (814) 206-7459 if you have any questions or require further assistance regarding this matter.

Sincerely,

Sonja Jahrsdoerfer
Project Leader



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Pennsylvania Ecological Services Field Office
110 Radnor Road Suite 101
State College, PA 16801-7987
Phone: (814) 234-4090 Fax: (814) 234-0748
<http://www.fws.gov/northeast/pafo/>

In Reply Refer To:

November 14, 2019

Consultation Code: 05E2PA00-2020-TA-0204

Event Code: 05E2PA00-2020-E-00976

Project Name: Leidy South Project

Subject: Verification letter for the 'Leidy South Project' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Kevin Clark:

The U.S. Fish and Wildlife Service (Service) received on November 14, 2019 your effects determination for the 'Leidy South Project' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"^[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Bog Turtle, *Clemmys muhlenbergii* (Threatened)
- Indiana Bat, *Myotis sodalis* (Endangered)
- Northeastern Bulrush, *Scirpus ancistrochaetus* (Endangered)

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Leidy South Project

2. Description

The following description was provided for the project 'Leidy South Project':

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. is proposing the Leidy South Project (Project). The Project is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Transco's Zone 6 includes the portion of the Transco system in Pennsylvania, New York, New Jersey, and Maryland. The Project consists of the following components:

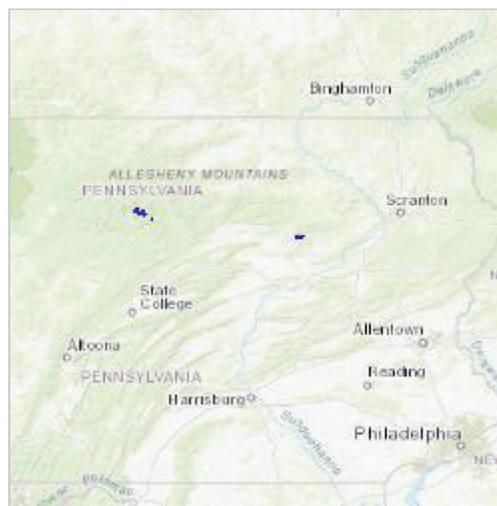
- 6.3 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hensel Replacement) and the related abandonment of 5.8 miles of existing 23.375-inch pipeline on Leidy Line A;
 - 2.4 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hilltop Loop);
 - 3.5 miles of 42-inch pipeline loop along Transco's Leidy Line in Lycoming County, Pennsylvania (Benton Loop);
 - Existing Compressor Station 605 (Wyoming County, Pennsylvania); Increase the total certificated horsepower of the two electric motor-driven units from 30,000 horsepower (HP) to 42,000 HP and modifications to existing coolers;
 - New Compressor Station 607 (Luzerne County, Pennsylvania); Install two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization [ISO] conditions each, 46,930 HP total) and gas coolers;
 - Existing Compressor Station 610 (Columbia County, Pennsylvania); o Add one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions) and gas cooling; Increase the total certificated horsepower of the two electric motor-driven units from 40,000 HP to 42,000 HP and re-wheel the existing compressors;
 - New Compressor Station 620 (Schuylkill County, Pennsylvania); o Install one
-

gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions);

- Ancillary facilities, such as mainline valves (MLVs), communication facilities, cathodic protection and pig launchers and receivers in Pennsylvania.

Subject to the Federal Energy Regulatory Commission (FERC) approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/41.299238244285945N76.22241376288787W>



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?
Yes
2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")
No
3. Will your activity purposefully **Take** northern long-eared bats?
No
4. Is the project action area located wholly outside the White-nose Syndrome Zone?
Automatically answered
No
5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?
No
-

7. Will the action involve Tree Removal?

Yes

8. Will the action only remove hazardous trees for the protection of human life or property?

No

9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

70

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?
0



Transcontinental Gas Pipe Line Company, LLC
2800 Post Oak Boulevard (77056)
P.O. Box 1396
Houston, Texas 77251-1396
713/215-2000

May 7, 2020

**Re: Update PNDI Search ID: PNDI-670193
Transcontinental Gas Pipe Line Company, LLC
Leidy South Project**

To Whom it May Concern:

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), PNDI-670193. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were include in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to rare, candidate, threatened or endangered species.

If you have any questions regarding this correspondence or require additional Project information, please do not hesitate to call me at (412) 713-0485 or contact me via e-mail at josh.henry@williams.com. Alternatively, you can contact Kevin Clark, Project Manager, at WHM Consulting, Inc., at (814) 689-1650 or via e-mail at kevinc@whmgroup.com. I appreciate your assistance and thank you for your attention to this request.

Respectfully submitted,

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

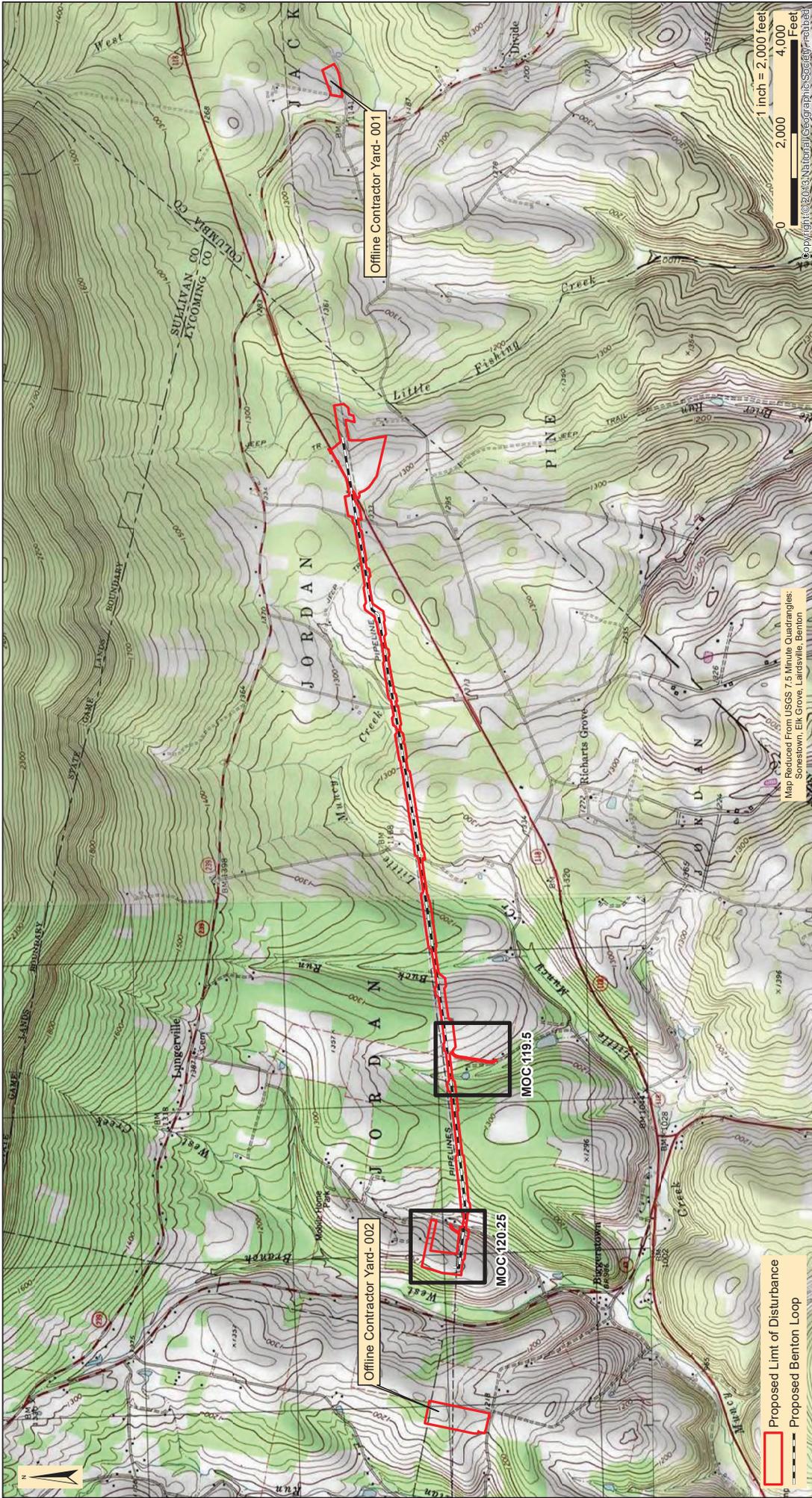
Josh Henry
Environmental Specialist

Attachments: Attachment A: Mapping

cc: Shauna Akers, Transco
Kevin Clark, WHM Consulting, Inc.

ATTACHMENT A
MAPPING

BENTON LOOP



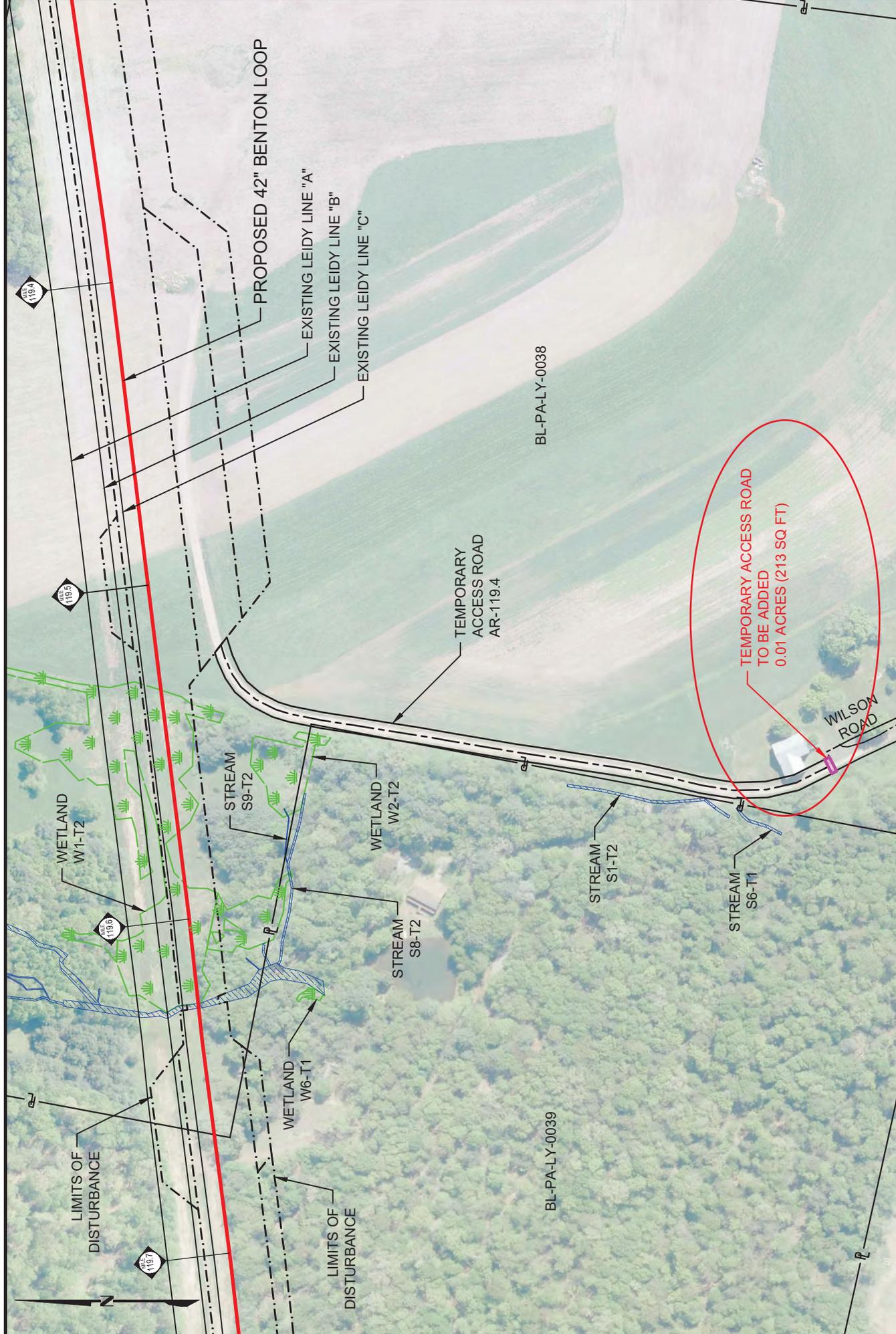
Date: 5/4/2020
 WHM DRAWING NUMBER: WILLIAMS202B003
 Drawn By: FTN
 Figure Number: 1

PENNSYLVANIA
 LYCOMING & COLUMBIA COUNTIES

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
LEIDY LINE D 42" BENTON LOOP
PROJECT LOCATION MAP



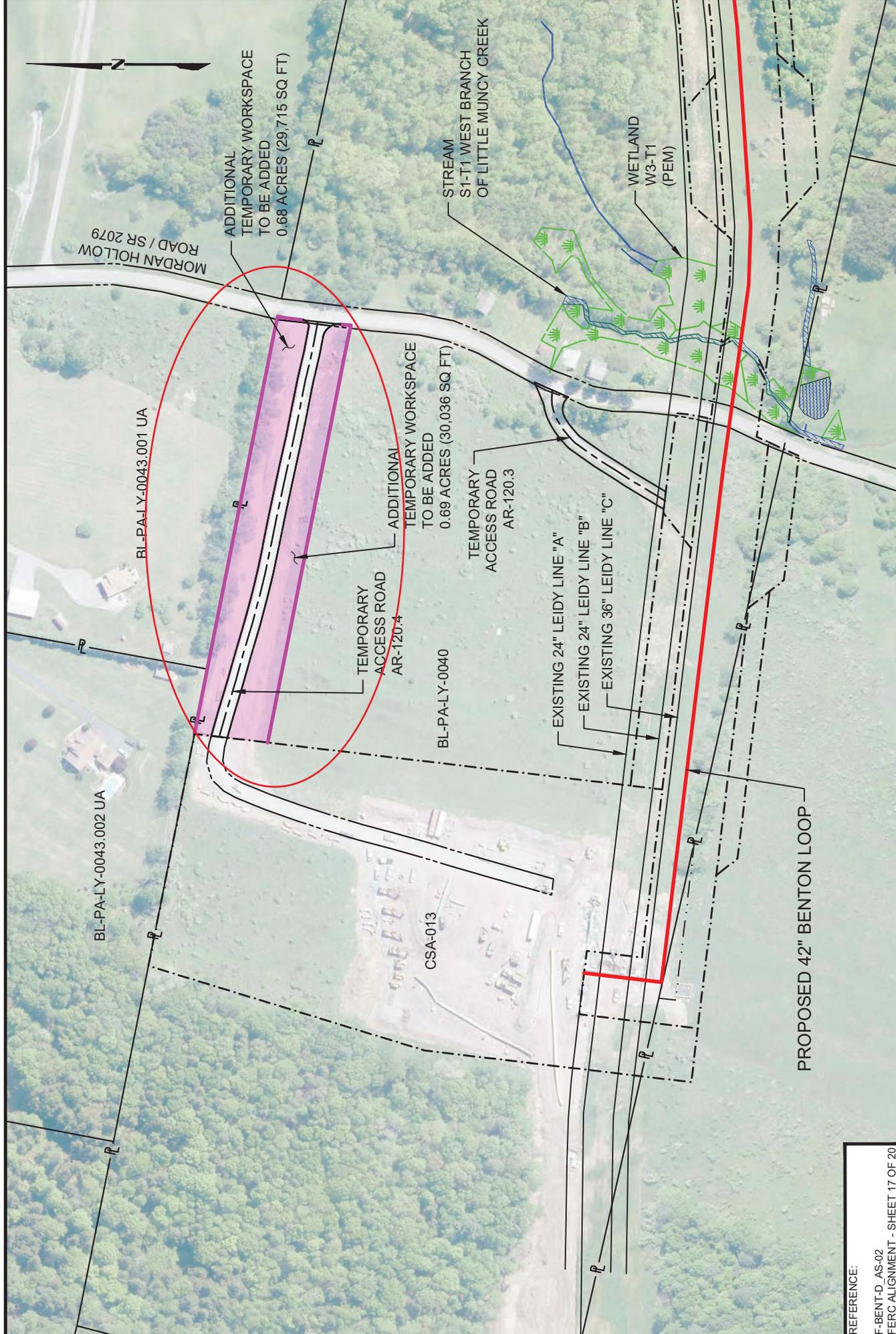
designs, permits, resolutions
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557



LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 42" BENTON LOOP
 WORKSPACE CHANGE
 MOC - 119.5



- LEGEND:
- PROPOSED 42" BENTON LOOP
 - EXISTING PIPELINES
 - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM CROSSING
 - WETLAND AREA



MOC-BENT-120_25

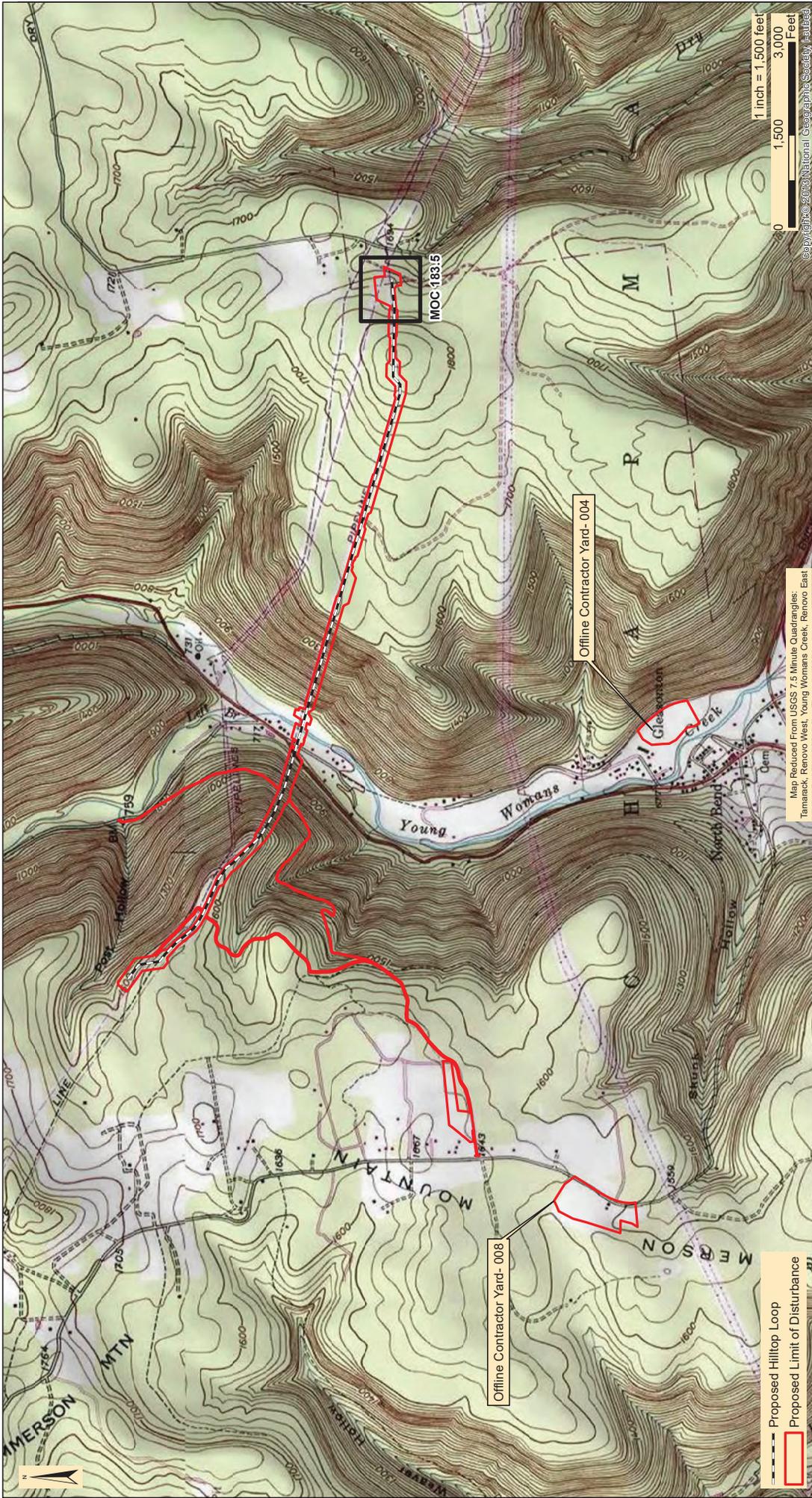
LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 42" BENTON LOOP
 WORKSPACE CHANGE
 MOC - 120.25



REFERENCE:
 F-BENT-D_AS-02
 FERC ALIGNMENT - SHEET 17 OF 20

- LEGEND:
- PROPOSED 42" BENTON LOOP
 - EXISTING PIPELINES
 - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM
 - WETLAND AREA

HILLTOP LOOP



1 inch = 1,500 feet
 0 1,500 3,000 Feet
 Copyright © 2013 National Geographic Society, Inc.

Map Reduced From USGS 7.5 Minute Quadrangles:
 Tamaack, Remoro West, Young Woman's Creek, Remoro East

--- Proposed Hilltop Loop
 [Red Box] Proposed Limit of Disturbance

Date: 5/4/2020
 WHM DRAWING NUMBER: WILLIAMS201B002
 Drawn By: FTN
 Figure Number: 2-1

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

LEIDY LINE D 36" HILLTOP LOOP
PROJECT LOCATION MAP

WHM designs, permits, resolutions | **consulting, inc.**
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

CHAPMAN TOWNSHIP CLINTON COUNTY PENNSYLVANIA



MOC-HILL-183_5

LEIDY SOUTH PROJECT
 MEMORANDUM OF CHANGE
 36" HILLTOP LOOP
 WORKSPACE CHANGE
 MOC 183.5



- LEGEND:
- PROPOSED 36" HILLTOP LOOP
 - EXISTING PIPELINES
 - - - LIMITS OF DISTURBANCE
 - PROPERTY LINE
 - STREAM
 - WETLAND AREA

TEMPORARY WORKSPACE TO BE REMOVED 0.03 ACRES (1,098 SQ. FT.)

HL-PA-CL-0001

WETLAND W1-T8 (PEM)

HL-PA-CL-0003

LIMITS OF DISTURBANCE

WETLAND W3-T7-HL (PEM)

MILE 183.6

EXISTING 24" LEIDY LINE "A"
 EXISTING 24" LEIDY LINE "B"
 EXISTING 30" LEIDY LINE "C"

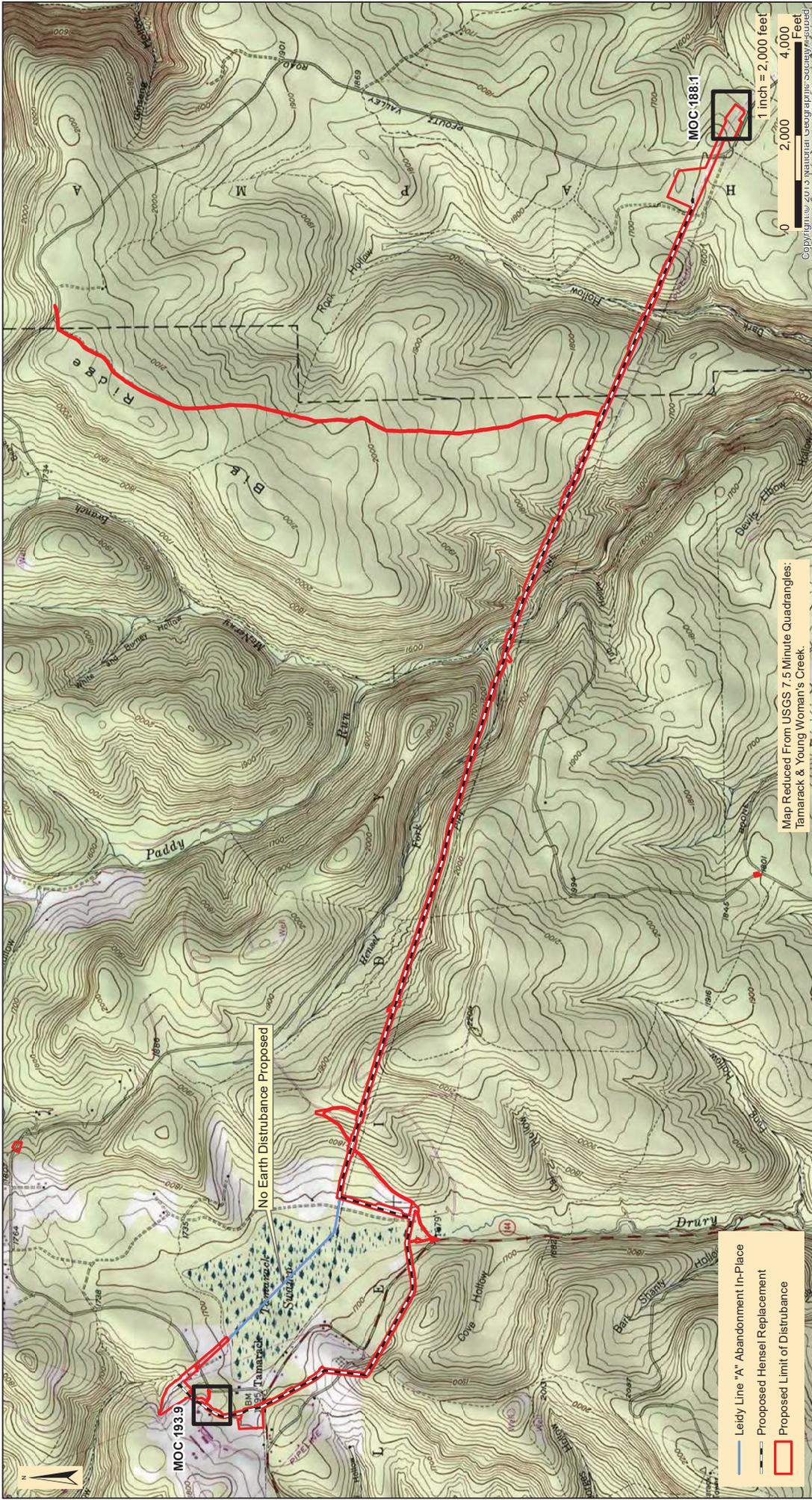
LIMITS OF DISTURBANCE

TEMPORARY WORKSPACE TO BE ADDED 0.03 ACRES (1,098 SQ. FT.)

STREAM S1-T8-HL

PROPOSED 36" HILLTOP LOOP

HENSEL REPLACEMENT



TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT

LEIDY LINE D 36" HENSEL REPLACEMENT PROJECT LOCATION MAP

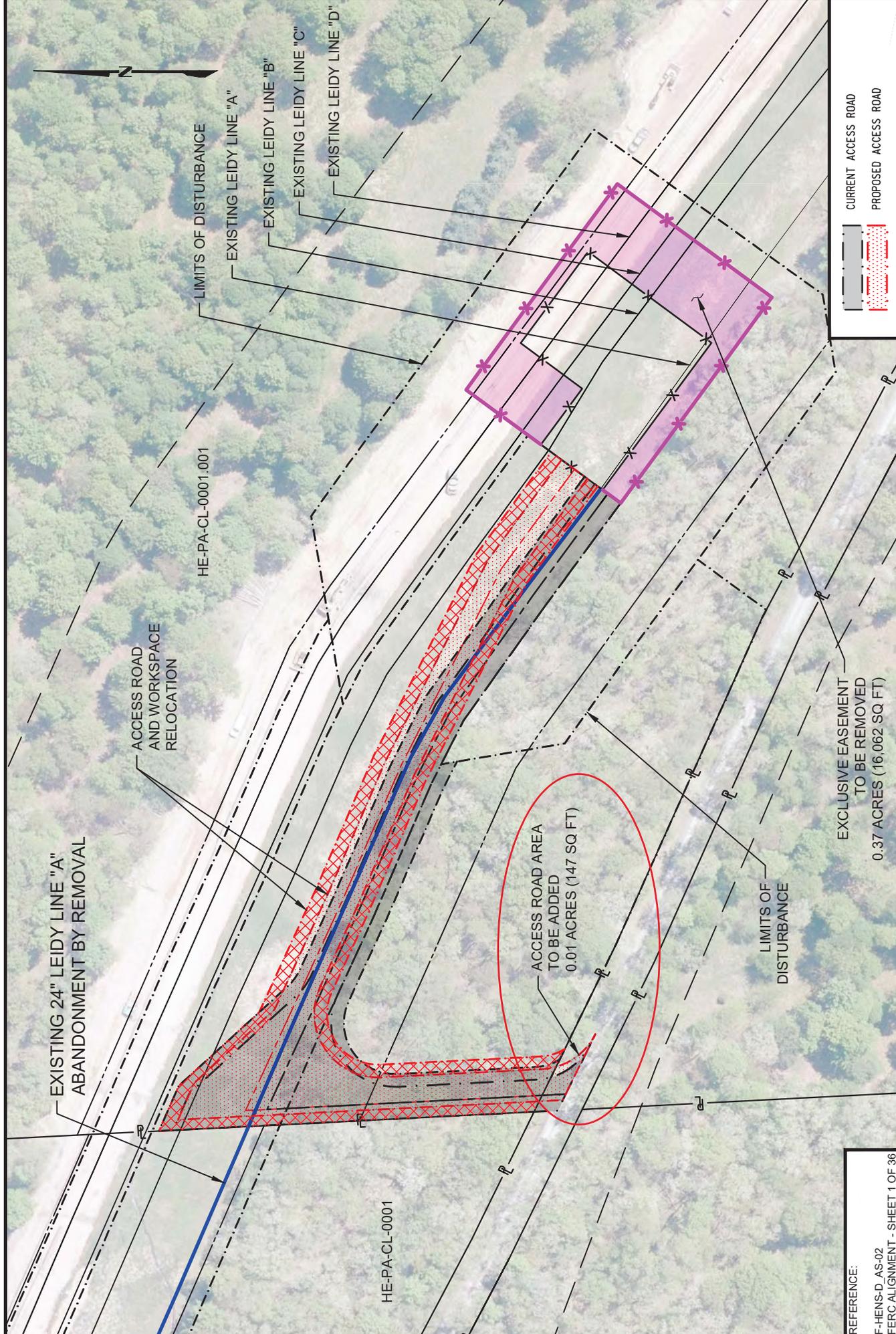
CLINTON COUNTY
LEIDY & CHAPMAN TOWNSHIP

Date: 5/4/2020
WHM DRAWING NUMBER: WILLIAMS202B001
Drawn By: FTN
Figure Number: 1-1

designs, permits, resolutions | consulting, INC.
2525 Green Tech Drive, Suite B,
State College, PA 16803
Tele: 814.689.1650 Fax: 814.689.1587

Legend:

- Leidy Line "A" Abandonment in-Place
- Proposed Hensel Replacement
- Proposed Limit of Disturbance



REV 2
MOC-HENS-188_1

LEIDY SOUTH PROJECT
MEMORANDUM OF CHANGE
36" HENSEL REPLACEMENT
EXCLUSIVE EASEMENT & ACCESS ROAD CHANGE
MOC 188.1

SCALE IN FEET

100 0 100

SHEET 1 OF 1
10/14/2019

REFERENCE:
F-HENS-D_AS-02
FERC ALIGNMENT - SHEET 1 OF 36

LEGEND:

- EXISTING 24" LEIDY LINE "A"
- EXISTING PIPELINES
- LIMITS OF DISTURBANCE
- PROPERTY LINE
- STREAM
- WETLAND AREA

HE-PA-CL-0001

HE-PA-CL-0001.001

ACCESS ROAD AND WORKSPACE RELOCATION

ACCESS ROAD AREA TO BE ADDED 0.01 ACRES (147 SQ FT)

EXCLUSIVE EASEMENT TO BE REMOVED 0.37 ACRES (16,062 SQ FT)

LIMITS OF DISTURBANCE

LIMITS OF DISTURBANCE

EXISTING LEIDY LINE "A"

EXISTING LEIDY LINE "B"

EXISTING LEIDY LINE "C"

EXISTING LEIDY LINE "D"

CURRENT ACCESS ROAD

PROPOSED ACCESS ROAD

Kevin Clark

From: Shellenberger, Pamela <pamela_shellenberger@fws.gov>
Sent: Wednesday, May 20, 2020 5:07 PM
To: Kevin Clark
Cc: Akers, Shauna; Henry, Josh
Subject: Re: [EXTERNAL] RE: UPDATE - USFWS Project # 2019-0122; PNDI Receipt #670193; Consultation Code: 05E2PA00-2020-TA-0204

Kevin,

Thank you for providing additional information regarding the minor workspace changes on the Benton Loop, Hilltop Loop and Hensel Replacement projects associated with the Leidy South Project. You indicated that all changes outlined will take place in previously disturbed areas with no additional tree clearing or water resources impacts proposed, and that the changes in the workspace are minor. Therefore, determinations in our letters of June 24, 2019 and October 1, 2019 remain unchanged.

Please let me know if you have any questions.
Thank you,

Pamela Shellenberger

U.S. Fish and Wildlife Service
Pennsylvania Field Office
110 Radnor Road, Suite 101
State College, PA 16801
814-234-4090 x7459
<http://www.fws.gov/northeast/pafo/>

Working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

Note: I am temporarily teleworking. You can continue to reach me through email or by calling the number listed above.

From: Kevin Clark <kevinc@whmgroup.com>
Sent: Thursday, May 7, 2020 11:07 AM
To: Shellenberger, Pamela <pamela_shellenberger@fws.gov>
Cc: Akers, Shauna <Shauna.Akers@williams.com>; Henry, Josh <Josh.Henry@williams.com>
Subject: [EXTERNAL] RE: UPDATE - USFWS Project # 2019-0122; PNDI Receipt #670193; Consultation Code: 05E2PA00-2020-TA-0204

Pam,

Transcontinental Gas Pipe Line Company, LLC (Transco) is providing an update to the PNDI for the Leidy South Project (Project), USFWS Project # 2019-0122, PNDI-670193, Consultation Code: 05E2PA00-2020-TA-0204. Minor workspace changes have been incorporated into the design since the last update on August 22, 2019. The following Project information summarizes workspace changes that will take place outside the previously submitted Project Area. All areas outlined below were included in the survey area for species specific surveys conducted for the Project.

Benton Loop

MOC – AR 119.5

Added <0.01 acre of workspace to an existing access road to accommodate the revised Wilson Road Right of Way.

MOC – 120.25

Added 1.37 acre of additional temporary workspace to Access Road AR-120.4 for the purpose of the removing existing post-construction stormwater management facilities installed for the Atlantic Sunrise project that will no longer be required upon the completion of the Leidy South Project.

Hilltop Loop

MOC – 183.5

Modified Contractor Yard to allow for the removal of the existing valve site resulting in the addition of 0.03 acre of temporary workspace.

Hensel Replacement

MOC – 188.1

Added <0.01 acre of workspace to a proposed access road to extend onto Summerson Mountain Road.

MOC – 193.9

Rerouted pipeline centerline to avoid newly installed tanks on Dominion property and relocated the access to an existing road resulting in the addition of 0.45 acre of temporary workspace.

Updated mapping is provided in Attachment A. This mapping outlines the overall Project Location Maps with specific call outs to the updated locations and site-specific mapping for each of the workspace changes listed above. We are requesting verification that the minor changes to the Project since the last submission will not result in changes to your agencies responses regarding potential impacts to threatened or endangered species. All changes outlined will take place in previously disturbed areas with no additional tree clearing or water resources impacts proposed.

I appreciate your assistance, and thank you for your attention to this request.

Kevin M. Clark | PWS

Senior Project Manager / Office Manager

WHM Consulting, LLC

(814) 689-1650 ext. 105 - office

(814) 404-6241 - cell



If you have received this message in error, please reply to advise the sender of the error and then immediately delete this message.

REQUIREMENT L-4

**MODULE S3- IDENTIFICATION AND
DESCRIPTION OF POTENTIAL PROJECT IMPACTS**



Transcontinental Gas Pipe Line Company, LLC

**Requirement L-4, Environmental Assessment
Module S3 – Identification and Description of Potential
Project Impacts**

Leidy South Project – Compressor Station 607

September 2019
(Revised August 2020)

TABLE OF CONTENTS

Module S3- Identification and Description of Potential Project Impacts

S3.A Summary of the Proposed Temporary and Permanent, Direct and Indirect Impacts *(Revised May 2020)*

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MODULE S3

IDENTIFICATION AND DESCRIPTION OF POTENTIAL PROJECT IMPACTS

According to Module 3 of the EA Form Instructions, permanent impacts are defined as areas that are affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water. Temporary impacts are defined as areas affected during the construction of a water obstruction or encroachment that consist of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This area does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water. A summary of permanent and temporary, and direct and indirect impacts is provided in Table S3.A-1.

S3.A Summary of the Proposed Temporary and Permanent, Direct and Indirect Impacts

As part of Compressor Station 607 (Project) unavoidable resource impacts are proposed. Table S3.A-1 below outlines the overall impacts as it relates to Compressor Station 607. Detailed impacts by resource are provided in subfacility summary tables found in Appendix S3-1.

Table S3.A-1 Aquatic Resource Impact Summary Table				
Project Component¹	Impact Type	Resource	Direct¹ (Acres)	Indirect (Acres)
Compressor Station 607	Permanent	Wetland	-	-
		Watercourse	-	-
	Temporary	Wetland	0.33	0.33
		Watercourse	-	-
Notes:				
1. Temporary direct impact areas are not additory to the impact areas listed as indirect, and such impacts are already accounted for. Temporary direct and indirect impact areas consist of timber mats/bridges.				

Temporary direct and indirect impacts would include 0.33 acres to wetlands. These temporary direct and indirect impacts would be associated with impacts associated with the placement of timber mats over resources.

S3.B Standard Information Responses

The below responses address resources identified in Module 2, Table S2.A.5-1.

S3.B.1 National, State, or Local Park, Forest or Recreation Area

The Project facilities, including the pipelines and aboveground facilities, will neither cross nor be located within 0.25 mile of federal lands, including national parks, national forests or state forest land.

S3.B.2 National Natural Landmark

The Project facilities, including the pipelines and aboveground facilities, will neither cross nor be located within 0.25 mile of national natural landmarks or registered national landmarks (USGS 2014, 2015).

S3.B.3 National Wildlife Refuge, or Federal, State, or Private Wildlife or Plant Sanctuaries

The Project facilities, including the pipelines and aboveground facilities, will neither cross a National Wildlife Refuge, or Federal, State, or Private Wildlife or Plant Sanctuaries.

S3.B.4 State Game Lands

The Project facilities, including the pipelines and aboveground facilities, will neither cross nor be located within 0.25 mile of state game land.

S3.B.5 Areas Identified as Prime Farmland

Construction of Compressor Station 607 will affect approximately 18 acres of prime and important farmland soils. Appendix S3-2 identifies important farmlands impacted by the overall Leidy South Project. Construction may result in temporarily removing those soils from agricultural production if construction occurs during the growing season. Within the permanent footprint of the Compressor Station 607, there would be a long-term loss of prime and important farmland soils.

S3.B.6 Source for a Public Water Supply

Public Water Supply Well Information

Transco reviewed public water supply well information for Pennsylvania, which is available on the Pennsylvania Department of Environmental Protection (PADEP) *eMapPA* online map-

based query (PADEP 2019). Based on this review, groundwater wells were identified within one mile of three of the proposed crossing locations. Appendix 1 – Public Water Supply Report of the Joint Permit Application submittal provides additional information on groundwater wells.

Wellhead Protection Areas

Transco reviewed the PADEP *eMapPA* GIS-based web-based mapping tool to identify if any WHPAs are within 0.25-mile of the Project. Based on this review of *eMapPA*, no public water systems or WHPAs are within 0.25-mile of the Project (PADEP 2019) No WHPAs are crossed by the Project pipeline facilities or occur within the workspace of the aboveground facilities (PADEP 2019); therefore, there will be no effect on WHPAs.

Public Surface Water Intake Information

Transco reviewed the PADEP *eMapPA* GIS-based web-based mapping tool to identify the presence of surface water intakes within 5 miles of the Project area on August 8, 2019. No surface water intakes were crossed by the Project pipeline facilities or occur within 5 miles of the workspace.

Private Water Supply Wells

In addition to identifying public water supply wells, Transco has identified private water supply wells and springs within 150 feet of construction workspaces that serve individual uses or residences. Transco primarily identified these private wells through environmental surveys and by directly contacting landowners. Transco also identified additional private water supply locations within 150 feet of the workspaces through civil survey. Table S3.B.6-1 lists the private water supply wells and springs identified to date within 150 feet of construction workspaces.

**Table S3.B.6-1
 Private Water Supply Wells and Private Springs within 150 Feet of Construction Workspaces**

Nearest Milepost	County	Supply Type	Distance from Workspace (feet)	Direction from Workspace
Compressor Station 607				
N/A	Luzerne	Private wells	0	N/A
Key: N/A = Not Applicable				

Transco will offer to have a qualified, independent testing service conduct groundwater tests for private wells located within 150 feet of the Project workspace or within 150 feet of blasting activities. Water quantity testing will include yield measurements using the existing pump and discharge line when possible and a portable submersible pump when necessary. Any well

modification for the purposes of testing will be completed with the permission of the landowner. Water samples collected for water quality analysis will be tested for specific conductivity, temperature, pH, turbidity, nitrate, volatile organic compounds, and total petroleum hydrocarbon. Sampling methods will adhere to the prevailing EPA and state sampling and analytical procedures in place at the time of construction.

A Transco representative will contact landowners after the sample analysis has been conducted to provide the sample results. In the unlikely event that construction of the Project temporarily affects the water quality or yield of a private or public well/spring, Transco will provide alternative water sources or other compensation to the well owner(s). In the unlikely event that a well/spring is permanently affected due to construction activities, Transco will repair, replace, or provide alternative sources of potable water.

An existing well onsite will be abandoned via grouting as provided in PADEP’s Water-Well Abandonment Guidelines (Chapter 7 of the Groundwater Monitoring Guidance Manual dated December 2001).

S3.B.7 National Wild or Scenic River or the Commonwealth’s Scenic River System

No state wild or scenic rivers are within 100 feet or will be crossed by the Project facilities (PADCNR 2014).

S3.B.8 Designated Federal Wilderness Area

The Project is not located in, or within, 100 feet of a federal wilderness area.

S3.C.1-10 Subfacility Details Tables

The proposed water obstructions and encroachments are included in the Subfacility Details Table provided in Appendix S3-1. This table includes the subfacility identifier, subfacility code, resource identifier, coordinates, municipality, county, and temporary and permanent, indirect, and direct impacts for each subfacility.

S3.D Resource Function Effects

S3.D.1 Subfacility Identifier

The Project impacts are grouped by the subfacilities as defined by the PADEP. The subfacilities applicable to the Project and their definition is provided Table S3.D-1 below

Table S3.D-1 Subfacility Codes Table		
Subfacility Code	Name	Definition

TMPWI	Temporary Wetland Impact	Used for direct and indirect temporary wetland impacts resultant from temporary workspace outside of the operational footprint. This code does not apply to utility line crossings within the wetland.
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The effects of the of the subfacilities identified in Table S3.D-1, either individually or in combination, are provided in the following sections.

S3.D.2 Impact Types

Impacts associated with the Compressor Station 607 utilized the TMPWI subfacility code.

S3.D.2(i) Hydrologic

The characteristics of water quantity, stream flow, and sources, groundwater basal flows, drainage patterns, flushing characteristics, flow currents, natural recharge or source areas, stormwater and floodwater storage and control are discussed below.

Water Quantity, Stream Flow and Sources

Only temporary wetland impacts are proposed at Compressor Station 607. Impacts to water quantity and stream flow are not anticipated as result of the Project. Portions of wetlands will be temporarily impacted as result of the installation of this facility. The temporarily impacted wetlands will be restored.

Groundwater Basal Flows and Natural Recharge or Source Areas

No impacts to groundwater basal flows and natural recharge or source areas are anticipated as part of the Project. Impacts to groundwater basal flows and natural recharge or source areas will be avoided and minimized through the utilization of Transco’s Plan and Procedures, found in Appendices S3-3 and S4-1. Additionally, potential impacts will also be minimized through the use of the Spill Plan for Oil and Hazardous Materials (Spill Plan) provided in Appendix S3-4 Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials if incidents occur.

Impacts to groundwater basal flows and natural recharge or source areas are not anticipated at Compressor Station 607. Compressor Station 607 will have permanent impervious areas added to facilitate the site design. Impacts associated with the increase in impervious area will be mitigated with stormwater management design. Due to the Project mitigating for the impervious areas through the use of stormwater management, impacts to the wetland functions associated with groundwater basal flows and natural recharge or source area are not anticipated.

Drainage Patterns, Flushing Characteristics and Flow Currents

The proposed Project will have minimal impacts during construction to drainage patterns, flushing characteristics and flow currents to wetlands and waterbodies, with no long-term impacts anticipated.

Only temporary wetland impacts are proposed at Compressor Station 607. Wetlands temporarily impacted will be restored and these functions will have no change as a result of the Project. No significant or long-term impacts associated with drainage patterns, flushing characteristics and flow currents will be impacted.

Stormwater and Floodwater Storage and Control

The proposed Project will have minimal impacts during construction and post-construction to stormwater and floodwater storage and control, with no long-term impacts anticipated.

Impervious surfaces will be added as part of the site construction. The addition of impervious surfaces can alter the natural hydrology in a watershed by increasing the volume of stormwater runoff and reducing groundwater recharge. Transco will submit post-construction stormwater management (PCSM) plans associated with the Chapter 102 permit for construction of each aboveground facility. The plans will incorporate BMPs and other measures to minimize off-site movement (rate and velocity) of stormwater and associated effects on nearby waterbodies. Operations and maintenance plans will be incorporated into the PCSM plans of aboveground facilities in accordance with applicable regulatory requirements. During pipeline operation, Transco will regularly inspect the facilities and on-site stormwater management structures. All aboveground facilities will be located outside of FEMA floodplains, FEMA Floodways and 50-foot floodways.

S3.D.2(ii) Biogeochemical

Hydrodynamics

Only temporary wetlands are proposed at this site. Wetlands temporarily impacted will be restored and these functions will have no change as a result of the Project.

Food Chain Production

Temporarily impacted wetlands associated with the Compressor Station 607 will be restored with no long-term impacts to food chain production anticipated.

Water Quality

The PADEP Erosion and Sediment Pollution Control Program Manual, dated March 2012 (Manual), was used as a primary reference for design and selection of E&S control BMPs to be

implemented during the Project. These will be consistent with the requirements of the PA Code Title 25 Chapter 105 requirements, as it relates to wetland and waterbody impacts.

Sediment controls will be designed to stay within the Limits of Disturbance, with controls and plans in place to minimize potential impacts. Post construction stormwater measures will be designed to manage stormwater runoff. With the implementation of the E&S Plan and the PCSM, impacts to water quality are not anticipated.

The following techniques will be employed during construction to minimize the potential for soil erosion and sediment migration:

All Subfacility Types

- E&S BMP measures will be installed prior to commencement of earthwork and will not be removed until after the up-gradient areas are stabilized.
- Rock construction entrances will be installed along points of access to the pipeline alignment to mitigate the potential for construction vehicles to transport sediment onto public roadways.
- Compost filter sock will be installed along the down-gradient perimeter of the work areas.
- Removal of the erosion and sediment control BMP measures will occur only after the disturbed areas have been stabilized by uniform perennial vegetative coverage (density) of seventy percent (70%) or greater, or by other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding and other movements.
- Diligent maintenance of the erosion and sediment control BMP measures will be conducted throughout the duration of the project.

Compressor Station 607

- Post-construction stormwater BMP's including detention basins and other permanent BMP's will be designed to meet DEP's Post-Construction Stormwater Management regulations which accounts for managing rate, volume and water quality.

Post-construction stormwater management measures will also be implemented for water quality in areas where it is required. The PCSM is designed to manage stormwater runoff

associated with new impervious areas for the proposed aboveground facilities. The design will promote retention and infiltration into the ground, controlling sediments by keeping them onsite. With the implementation of the E&S Plan and the stormwater management measures, water quality impacts are not anticipated.

Transco reviewed the 303(d) lists for streams crossed by the Project that are included in EPA Categories 4 and 5. Category 4 lists waterbodies where TMDLs have been established or cannot be established due to the nature of the contamination. Category 5 lists waterbodies where TMDLs need to be developed by the state. (PADEP 2019). No surface waters crossed by the Project are classified as impaired waterbodies.

S3.D.2(iii) Habitat

General Habitat

General construction related impacts on wildlife species, as it relates to wetlands, waterbodies, and the surrounding areas, will result from habitat disturbance and human activities. Indirect impacts on wildlife will include those associated with increased human activity. Construction of the Project is likely to result in the temporary displacement of, or stress on, animals in areas adjacent to construction and cause movement of some wildlife away from the Project area. Stress on wildlife could affect general health, reproduction, and viability of young animals, depending on the sensitivity of a particular species, season of the year, and other factors. Impacts to forested areas may have an impact on nesting bird species, rearing of young, and availability of escape cover. While the Project does have impacts to typical wildlife habitat of the region, it is unlikely the Project has an influence on biodiversity, as the areas to be impacted are typical settings for the region, and unique areas have been avoided.

During clearing and grading activities, more mobile wildlife species (e.g., larger mammals, birds, and reptiles) will be able to avoid the construction area, and many are expected to leave the area during construction and migrate to surrounding areas. Construction activity will be temporary and will occur in a given area for only a few weeks, in general. Habitat recovery will occur, aided by the use of the impact minimization and restoration measures.

Transco does not anticipate the Project to reduce or degrade habitat for terrestrial, aquatic, or avian species significantly due to the existing and proposed land use. Habitat fragmentation has been minimized through siting in a unforested area. While temporary impacts on food, cover, and water sources may occur, none of the species located within the Project area are specialized

in such a way that construction of the Project will inhibit the overall fitness or reproductive output of the populations as a whole. Minimal changes to existing habitat types will occur due to this Project siting. Wildlife populations that utilize the Project area are not expected to be permanently adversely affected by the proposed Project.

Compressor Station 607 is located in an isolated agricultural property surrounded by forest land. The habitat that will be impacted is generally agricultural fields, with the exception of some forest land adjacent to the existing pipeline. Due to this being a permanent above ground facility, most wildlife habitat will be removed from the operational footprint of the compressor station. It is likely that those species that tolerate habitat adjacent to the existing human activities at the site will continue to occupy the site.

Environmental Study Areas

The Project will not result in impacts to environmental study areas at any of the subfacility areas.

Threatened and Endangered Species

The discussion below outlines the potential impacts and proposed mitigation for all subfacilities associated with Compressor Station 607, as survey requests from the regulatory agencies with jurisdiction of each of the species listed below reviewed.

United States Fish and Wildlife Service

Indiana Bat

The United States Fish and Wildlife Service (USFWS) indicated that the Project is within the range of the Indiana bat, which is federally listed as endangered. The USFWS indicated that as long as tree clearing occurred between November 15 and March 31 for the Project, then surveys were not required for the Indiana bat.

Transco plans to complete all tree clearing outside of the active Indiana bat season to avoid impacts on any Indiana bats that may be present in the Limits of Disturbance (LOD). Specifically, tree clearing will be completed between November 15 and March 31. As such, Transco does not expect impacts to Indiana bats as a result of the Project.

Northern Long-eared Bat

Transco previously completed surveys for northern long-eared bats in 2014 through 2016 for its Atlantic Sunrise Project, which is located adjacent to the proposed Project. Based on review of that survey data within 0.25 mile of the Project, no known maternity roost trees are located

within 0.25 mile of Compressor Station 607. On February 16, 2016, a special conservation rule (i.e., 4(d) rule) was adopted that tailors protections for the northern long-eared bat under the Endangered Species Act (81 FR 1900). Incidental take that occurs as a result of tree removal that is not within 0.25 mile of a known northern long-eared bat hibernaculum or within 150 feet from a known, occupied maternity roost tree is not prohibited in accordance with the 4(d) rule” (Jahrsdoerfer 2019b).

A USFWS Verification Letter has been provided for the Leidy South Project which verifies that the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule Programmatic Biological Opinion satisfies and concludes responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat. Transco plans to complete all tree clearing outside of the active northern long-eared bat season to avoid impacts on any northern long-eared bats that may be present in the LOD. Specifically, tree clearing will be completed between November 15 and March 31. As such, Transco does not expect impacts to northern long-eared bats as a result of the Project.

Northeastern Bulrush

All Project components are within the range of the northeastern bulrush (*Scirpus ancistrochaetus*), which is federally listed as endangered (Jahrsdoerfer 2019b). The preferred habitat of the northeastern bulrush is along the fringes of seasonal ponds, shallow wet depressions, and wetlands. It fruits in July and persists through January (Podniesinski 2018).

Transco conducted surveys in June and July of 2019 of all potentially suitable wetland habitat within and surrounding the proposed Project area. The presence of Northeast Bulrush was not confirmed within the Compressor Station 607 Project area or survey corridor as outlined the DCNR / USFWS Botanical Survey Report outlined in Requirement L-3, Module 2, Appendix S2-3. The October 1, 2019 letter from the USFWS concluded that implementation of the proposed project will not affect this species.

Pennsylvania Department of Conservation and Natural Resources

The DCNR identified several target plant species associated with the Compressor Station 607 (Table S2.C.2(ii)-1). Target species include those that are state-listed or proposed for state listing as rare, threatened, or endangered. Although the DCNR did not indicate that any rare, threatened, or endangered plant species were documented on-site, plant surveys were requested to be conducted for target species in Project areas that met the conditions of each species’ habitat

(Podniesinski 2018). Survey windows vary for each species based primarily on flowering times, or other times of year when the plant is most readily apparent. Table S3.D.2(iii)-1 describes suitable habitat and flowering windows for each of the seven state-listed plant species. The federally listed northeastern bulrush is described above under the USFWS section.

Table S3.D.2(iii) - 1 Habitat and Flowering Windows for State-Listed Plant Species Potentially Occurring Within the Project Area			
Common Name	Scientific Name	Habitat	Flowing / Fruiting Window
White Twisted-stalk	<i>Streptopus amplexifolius</i>	Documented in a moist shaded ravine; suitable habitat includes cool ravines	Flowers: May-June
Swamp Currant	<i>Ribes lacustre</i>	Documented in a moist shaded ravine; suitable habitat includes swamps and cold, wet woods	Flowers: May - June
Creeping Snowberry	<i>Gaultheria hispidula</i>	Documented in flat wet woods; suitable habitat includes hummocks and tree stumps in bogs and swamps	Flowers: June Fruits: September
Sources: Podniesinski 2018; PNHP n.d.(b);			

Transco completed surveys for state-listed plant species identified within and surrounding the Project area for Compressor Station 607. No state-listed species were identified within the Limits of Disturbance or Survey Area. A DCNR / USFWS Botanical Survey Report and approval letter is included in Appendix S2-3.

Pennsylvania Fish and Boat Commission

The PFBC did not identify target amphibian or reptile species associated with Compressor Station 607 in Luzerne County.

Pennsylvania Game Commission

The PGC defers comments on potential impacts to the Northern Long-eared bats to the USFWS. No other potential impacts based on the currently proposed Project area were identified.

S3.D.2(iv) Recreation

Hunting

This site is located on private lands managed for agricultural use. Recreational hunting opportunities are limited to only those with permission to access these properties. Recreational hunting is not anticipated to be impacted.

Fishing

No watercourse impacts are proposed at Compressor Station 607; therefore, no recreational fishing opportunities will be impacted.

Hiking and Plant/Wildlife Observation

Hiking and Plant/Wildlife Observation opportunities are not expected to be impacted at this site, as this is private agricultural property.

Swimming/Boating

No watercourses will be impacted at Compressor Station 607

S3.D.3 Effect on Overall Ecology

Temporary wetland impacts (TMPWI) are proposed at Compressor Station 607 which will be restored to original conditions and contours upon completion of construction. As a result, there is very minimal effect to the overall regime and ecology of the watercourse or wetland associated with the Project. Water quality, streamflow, fish and wildlife, aquatic habitat, and instream and downstream uses are minimally impacted by the subfacilities mentioned above, which will have very minimal effect on these environmental factors.

S3.D.4 Upstream and Downstream Property or Riparian Rights

The Project is not expected to result in impacts to upstream and downstream properties. The implementation of the BMPs associated with applicable state and federal permits to be approved for the project prior to construction will minimize impacts to properties upstream and downstream of the Project.

S3.E Antidegradation Analysis

Transco is meeting the state antidegradation requirements contained in Chapters 93, 95, 102 and 105 through various measures provided in the Project design, such as proposed construction measures and requests for permit approvals for activities associated with the Project. Compressor Station 607 is entirely located within EV watersheds, as defined by Chapter 93. Transco will install ABACT BMPs throughout the Project, protecting the existing uses of the designated high-quality streams, “Other” and “EV” wetlands impacted by the Project, and within a Section 303(d) listed impaired watershed. BMPs outlined in the E&S control and site restoration plans will be installed, monitored and maintained until the Project meets the

vegetative cover requirements required by the approved permits for earth disturbance and water obstruction and encroachment. During the Project's construction, any issues identified with the BMPs shall be repaired as described in the permits and plans.

No changes to the aquatic community or water chemistry within the wetlands impacted by the Project are anticipated to occur. The wetlands impacts associated with temporary disturbance will be restored and stabilized upon final restoration. The wetland impacts are considered isolated to their disturbance area and do not extend beyond the Projects LOD.

As part of the Project design, impacts to resources were avoided and minimized where possible and include the following measures: siting new compressor stations with minimal water resource impacts and restoration temporarily impact wetlands to pre-existing conditions. Transco has provided a nominal workspace for in the installation and operation of this above-ground facility. During construction, disturbance will be kept to the minimum necessary to safely complete construction activities.

Consultation with state and federal agencies regulating threatened and endangered (T&E) species has occurred. The agencies include the Pennsylvania Game Commission, PFBC, DCNR and the USFWS. Transco completed surveys, as required by the appropriate agency, for T&E species. Clearance letters from each agency is provided in Appendix S2-3.

During construction, the Transco's Construction Spill Prevention and Response Procedures for Oil and Hazardous Materials (Spill Plan) outlined in Appendix S3-4 will be implemented to minimize the potential for spills and the effects of any spills that may occur. Details of how the site materials are managed, including the storage of equipment, hazardous materials, fuels, and lubricating oils and other construction items are identified in the Spill Plan. The plan defines the procedures for spill notification, emergency response, spill response, personal protective equipment, clean-up procedures and spill presentation practices. As part of the Project, hydrostatic discharge testing will be completed. Discharges associated with the testing will conform to permit conditions specific to the discharge, meeting the state antidegradation requirements.

The cumulative effect of the Project will not result in the impairment of the Commonwealth's EV and other wetland resources. A review of the Section 303(d) list of the Clean Water Act indicated that no surface waters crossed by the Project are classified as impaired waterbodies. The wetlands impacts will involve temporary disturbance while the

pipeline is being installed, as the wetlands will be restored and stabilized upon final restoration. The wetland impacts are isolated to their disturbance area and do not extend beyond the Projects LOD. The Project has been located in an area to avoid fragmentation and to minimize resource impacts. Construction BMPs, including erosion control devices and timber matting, to mitigate for soil compaction within the wetlands, will be utilized to minimize impacts throughout the Project. Transco will follow their Project specific Upland Erosion Control, Revegetation, and Maintenance Plan (Appendix S3-3) and their Project-Specific Wetland and Waterbody Construction and Mitigation procedures (Appendix S4-1), as well as other permit conditions outlined by the PADEP. The Leidy South Project is a single and complete project, with no foreseeable additional impacts to wetland resources of the Commonwealth of Pennsylvania, other than those proposed. The Project will not result a major impairment of the Commonwealths “EV” or “other” wetland resources.

S3.F. Alternatives Analysis

The Alternatives Analysis is provided in Requirement S of the Joint Permit Application.

S3.G. Potential Secondary Impact Evaluation

S3.G.1 Environmental Impacts on Adjacent Lands

Streams

This section describes the potential secondary impacts to aquatic resources associated with the Project’s stream crossings, including aquatic habitats, riparian areas, water quantity and water quality.

Aquatic Habitats

No watercourses will be impacted at Compressor Station 607.

Water Quantity

Potential secondary impacts on water quantity or the hydrology of streams could result from changes in the existing drainage patterns and alteration in flow and water levels from construction. However, the Project does not involve any stream relocations, enclosures, channel deepening/dredging activities, and/or addition of impervious surfaces in the wetland/stream complex. Because the Project does not involve direct impacts to natural and current drainage patterns and streams will be restored to approximate original contours following construction, the Project will not result in secondary impacts to existing drainage patterns.

Water Quality

Potential secondary impacts to stream water quality beyond the Project's limit of disturbance could result from: dewatering, clearing and grading of adjacent land; and, release of pollutants from construction equipment or activities adjacent to waters. In accordance with the Chapter 102 E&S requirements, water will be pumped from the trench and discharged into vegetated upland areas after first being filtered through a straw bale structure and/or filter bag. The rate of flow from the pump will be regulated to prevent scouring from runoff. Dewatering will be conducted in a manner designed to prevent the flow of heavily silt-laden water directly into adjacent waterbodies thereby minimizing secondary impacts. Additionally, aerial and ground inspections during Project operation will identify soil erosion issues which will be rectified by repairs or installation of temporary erosion control devices until permanent erosion control measures become effective.

Wetlands

This section describes the potential secondary impacts to aquatic resources associated with the Project's wetland crossings, including aquatic habitats, water quantity and water quality.

Habitat

General construction related impacts on wildlife species, as it relates to wetlands, will result from habitat disturbance and human activities. Secondary impacts on wildlife will include those associated with increased human activity. Construction of the Project is likely to result in the temporary displacement of, or stress on, animals in areas adjacent to construction and cause movement of some wildlife away from the Project area. Stress on wildlife could affect general health, reproduction, and viability of young animals, depending on the sensitivity of a particular species, season of the year, and other factors. Impacts to wetland areas may have an impact on nesting bird species, rearing of young, and availability of escape cover.

Other temporary impacts on wildlife species as a result of the general habitat impact could include those from trenching activities and associated spoil piles, which could result in a short-term barrier to movement to some species.

During clearing and grading activities, more mobile wildlife species (e.g., larger mammals, birds, and reptiles) will be able to avoid the construction area, and many are expected to leave the area during construction and migrate to surrounding areas. Construction activity will be

temporary. Habitat recovery will occur, aided by the use of the impact minimization and restoration measures thereby minimizing secondary impacts.

Water Quantity

Potential secondary impacts on water quantity or wetland hydrology could result from changes in the existing drainage patterns and alteration in flow and water levels from construction. However, the Project does not involve any addition of structures or impervious surfaces in the wetlands. A Post-Construction Wetland and Watercourse Monitoring Plan has been included in Module S4.D and will include monitoring for potential secondary impacts to hydrology due to change in grading at the site.

Compaction of wetland soils and rutting within wetlands could temporarily impact wetland hydrology. These impacts will be minimized by using low-ground-pressure equipment and temporary equipment mats. The segregation of topsoil within the trench line of wetland crossings will also limit the potential for soil compaction. The replacement of topsoil to the original soil horizons and elevations will promote the return of native vegetation along with the return of natural groundwater direction and flow rates.

Water Quality

As noted in Section S3.D.2(ii) above, secondary impacts related to the loss of water quality to adjacent wetland locations have the opportunity to occur during construction and restoration of the Project. Construction activities can disturb surface soils and cause subsequent sediment transport into adjacent wetlands. Sedimentation will be minimized by installing temporary sediment control measures between the upland construction areas and the wetlands, as described above. Permanent erosion controls, including slope breakers, trench breakers, and vegetative cover, will be used in adjacent upland areas to minimize long-term sedimentation into the wetlands. Potential secondary impacts will be minimized by installing energy-dissipation devices at the down-slope end of slope breakers to minimize erosion of soil into wetlands.

S3.G.2 Impacts on all other Dams, Water Obstructions, or Encroachments

There are no other dams, water obstructions, or encroachments necessary to fulfill this project purpose.

S3.H Cumulative Impacts to Wetland Resources

The cumulative impacts associated with the Project may result from the impacts of construction and operation of the Project components combined with the impacts of other

proposed major developments occurring within the vicinity of the Project. To review potential cumulative impacts, Transco considered recently completed, current, and reasonably foreseeable future major projects and other human-related activities (collectively “activities”) near the Project facilities. The basic assumption of the cumulative impacts analysis was that if activities were deemed to have minor or insignificant impacts, the cumulative impacts resulting from the activities and Project would also be considered minor or insignificant.

In order to minimize impacts, Transco co-located the pipelines with the existing Transco Leidy Line System. The Hilltop Loop and Benton Loop are entirely co-located, and the Hensel Replacement is co-located for 95 percent of its length. Transco’s proposed LOD was identified to provide for safe and efficient construction of large diameter pipeline facilities in accordance with OSHA regulations (29 CFR 1926.650-1926.652, Subpart P) and Interstate Natural Gas Association of America’s (INGAA’s) workspace guidelines (INGAA 1999). As an interstate natural gas pipeline facility Transco’s system is designed, constructed, operated, and maintained in accordance with the U.S. Department of Transportation’s (USDOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) Standard 49, Code of Federal Regulations (CFR) Part 192 (49 CFR Part 192.475-77). In accordance with the regulations, Transco has developed an enhanced pipeline Integrity Management Program to improve pipeline safety along its entire pipeline system and implements this program to comply with the requirements of 49 CFR Part 192, Subpart O. These federal safety standards, combined with robust integrity management programs and recent advances in pipeline manufacturing, construction, and inspection techniques, lengthen the life of Transco’s pipelines.

Focus was placed on permanent wetland and watercourse impacts, as temporary impacts are not considered an adverse cumulative impact based on PADEP’s Comprehensive Environmental Assessment Technical Guidance Document (TGD) entitled *Comprehensive Environmental Assessment of Proposed Project Impacts for Chapter 105 Water Obstruction and Encroachment Permit Applications Technical Guidance Number 310-2137-006*.

Permanent direct impacts would include 0.02 acres. These impacts would be associated with improvements to an existing access road (Hensel Replacement) that will result in permanent fill within 0.02 acres of Palustrine Emergent (PEM) wetlands.

Permanent indirect impacts would include 3.22 acres to wetlands and 3.24 acres to watercourses. These permanent indirect impacts would be associated with the existing and

proposed maintained ROW and include permanent functional conversion of Palustrine Forested (PFO) and Palustrine Scrub-Shrub (PSS) wetlands. The PFO and PSS wetland cover type conversion will result in a change to the wetland cowardin class but will result in no more than minimal individual and cumulative adverse environmental effects. Temporary and permanent functional conversion impacts will be offset through the enhancement at an offsite compensatory mitigation site, described in the Appendix S4-3.

Transco has identified past, present, and reasonably foreseeable projects and other human-related activities occurring in the vicinity of the Project (within 10 miles) that may result in cumulative effects when combined with the effects of the Project. Transco consulted with the affected municipal and county planning agencies to identify projects in the vicinity of the Project. Transco also identified other activities, such as transportation and energy development projects located within the counties affected by the Project. Table S3.H-1 provides a list of recent, ongoing, and reasonably foreseeable projects in the vicinity of the Project.

Table S3.H-1 Summary of Impacts for Projects Evaluated for Potential Cumulative Effects				
Project (Company Name as appropriate)	Construction Impacts (acres)	Waterbody Impacts (number of crossings)	Wetland Impacts (acres)	Land Use Impacts
FERC-Jurisdictional Natural Gas Pipeline Projects				
Transco Atlantic Sunrise Project (CP15-138)	2,822.2	388	PEM – 30.8 acres PSS – 4.3 acres PFO – 11.3 acres	Agricultural land – 1,789.2 acres Open land – 430.6 acres Upland forest – 1,043.2 acres Industrial/commercial land – 255.0 acres Transportation land – 88.5 acres Residential land – 70.9 acres
Transco Regional Energy Expansion	Information not available	Information not available	Information not available	Information not available
National Fuel FM100 Project (CP-19-491)	529.3	120	PEM – 12.0 acres PSS – 1.9 acres POW – 92.0 acres PUB – 16.5 acres	Agricultural land – 57.0 acres Open land – 197.0 acres Upland forest – 145.4 acres Industrial/commercial land – 147.5 acres Residential land – 0.9 acres

Table S3.H-1 Summary of Impacts for Projects Evaluated for Potential Cumulative Effects				
Project (Company Name as appropriate)	Construction Impacts (acres)	Waterbody Impacts (number of crossings)	Wetland Impacts (acres)	Land Use Impacts
Transco Leidy Southeast Expansion (CP13-551-000)	796.6	87	PEM – 15.1 acres PSS – 2.9 acres PFO – 8.5 acres	Agricultural land – 26.9 acres Open land – 226.5 acres Upland forest – 105.2 acres Industrial/commercial land – 7.9 acres Residential land - 18.8 acres
Other Natural Gas Facilities				
Wells/Shale Development				
Various	Information not available	Information not available	Information not available	Information not available
Other Actions				
Other Energy Facilities				
Renovo Energy Center	68	Information not available	Information not available	Information not available
Potential wind development	Information not available	Information not available	Information not available	Information not available
Transportation Projects				
Various bridge replacement and improvement projects	Information not available	Information not available	Information not available	Information not available
Other Development				
Nicholas Meat Anaerobic Digester Wastewater Treatment System	40.7	Information not available	Information not available	Agricultural land – 40.7 acres
Sources: FERC 2019a, 2019b; PADEP 2019; PennDOT 2019				
Key: PEM = Palustrine emergent PFO = Palustrine forested PSS = Palustrine scrub-shrub POW = Palustrine open water				

As described in Table S3.H-1, many of the projects considered in the cumulative impact assessment involve wetland and watercourse crossings. Transco expects that these projects will be or were constructed in accordance with the FERC Order (for FERC jurisdictional pipelines) and applicable environmental permit conditions and construction plans to avoid, minimize, and

mitigate effects on wetlands and watercourses. Other projects not regulated by the FERC would also need to comply with federal and state regulations and permit conditions relative to wetlands and waterbody effects, including implementation of BMPs to avoid and minimize potential effects, as well as development of suitable mitigation plans for unavoidable effects or losses of water resources. Based on the above analysis, Transco believes there will be no significant measurable cumulative effects of the Project on wetlands or watercourses.

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APPENDIX S3-1
SUBFACILITY DETAILS TABLE

TABLE S3-1-12 - COMPRESSOR STATION 607 - WETLANDS SUBFACILITY DETAILS TABLE								IMPACT GROUP SUBFACILITIES
Crossing Name ¹	Wetland ID ²	Cowardin Code ³	§ 105.17 classification ⁴	Latitude	Longitude	County	Municipality	Temporary Direct Wetland Impact (TMPWI) ⁵
								(acres)
CS607-1	W2-T2-CS607A	PEM	EV	41.298120	-76.222066	Luzerne	Fairmount	0.19
CS607-2	W2-T1-CS607A	PEM	EV	41.298862	-76.224436	Luzerne	Fairmount	0.12
CS607-3	W2-T3-CS607A	PEM	EV	41.299316	-76.224922	Luzerne	Fairmount	0.006
CS607-4	W3-T3-CS607A	PEM	Other	41.300071	-76.221980	Luzerne	Fairmount	0.01

Notes.

1. Unique identifier for Single and Complete Crossings.
2. Unique name for impacted resource.
3. Cowardin Codes: PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub Wetland; PFO = Palustrine Forested.
4. Exceptional Value Wetland Classifications as defined in §105.17 of the PA Code:
 - i. Wetland serves as habitat for species listed as "threatened" or "endangered."
 - ii. Wetland is hydrologically connected to or located within ½ mile from habitat for species listed above that are wetland dependent.
 - iii. Wetland is located within the floodplain of a wild trout stream, or its tributaries, or an exceptional value stream.
 - iv. Wetland is located along an existing private or public water supply.
5. Area of temporary wetland impact within the Project workspace, where only temporary fill, matting or excavation is occurring.

APPENDIX S3-2
SOIL CHARACTERIZATION TABLE



Transcontinental Gas Pipe Line Company, LLC

**Appendix S3-2
Soil Characteristics Tables**

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Table 7A-1
Soil Characteristics of each Soil Map Unit Crossed by Leidy South Pipeline Facilities

Begin Milepost ^a	End Milepost ^a	Map Unit Symbol ^b	Percent Slope ^c	Depth To Bedrock (inches) ^{c,d}	Land Capability Class ^{c,e}	High Compaction Potential ^f	Erosion Potential ^{c,g}	Wind Erodibility Group ^c	Poor Revegetation Potential ^h	Stony/Rocky Soils ⁱ	Hydric Soil ^c	Prime Farmland ^{c,j}
Hensel Replacement												
188.52	188.57	WeB	4	65	6	No	Moderate	5	No	No	No	N
188.57	188.67	CgB	4	50	7	Yes	Slight	6	No	No	No	N
188.67	188.73	CpB	4	46	7	Yes	Slight	6	No	No	No	N
188.73	188.78	HoF	38	60	7	No	Severe	5	Yes	Yes	No	N
188.78	188.89	CgB	4	50	7	Yes	Slight	6	No	No	No	N
188.89	189.16	HoF	38	60	7	No	Severe	5	Yes	Yes	No	N
189.16	189.23	CfB	4	50	7	No	Slight	5	No	No	No	N
189.23	189.37	CpB	4	46	7	Yes	Slight	6	No	No	No	N
189.37	189.49	HmD	17	50	7	No	Moderate	5	Yes	Yes	No	N
189.49	189.61	CgB	4	50	7	Yes	Slight	6	No	No	No	N
189.61	189.79	CpB	4	46	7	Yes	Slight	6	No	No	No	N
189.79	189.91	CfB	4	50	7	No	Slight	5	No	No	No	N
189.91	190.01	HoF	38	60	7	No	Severe	5	Yes	Yes	No	N
190.01	190.05	CpD	18	46	7	No	Severe	6	Yes	No	No	N
190.05	190.08	HoF	38	60	7	No	Severe	5	Yes	Yes	No	N
190.08	190.15	CfB	4	50	7	No	Slight	5	No	No	No	N
190.15	190.29	HoF	38	60	7	No	Severe	5	Yes	Yes	No	N
190.29	190.38	CpD	18	46	7	No	Severe	6	Yes	No	No	N
190.38	190.41	HoF	38	60	7	No	Severe	5	Yes	Yes	No	N
190.41	190.73	CpD	18	46	7	No	Severe	6	Yes	No	No	N
191.73	191.83	CpB	38	60	7	No	Severe	5	Yes	Yes	No	N
191.83	191.88	HoF	4	46	7	Yes	Slight	6	No	No	No	N
191.88	192.12	CpB	38	60	7	No	Severe	5	Yes	Yes	No	N

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192.12	192.41	HoF	4	46	7	Yes	Slight	6	No	No	No	N
192.41	192.49	CpD	38	60	7	No	Severe	5	Yes	Yes	No	N
192.49	192.57	HmD	18	46	7	No	Severe	6	Yes	No	No	N
192.57	192.57	CgB	17	50	7	No	Moderate	5	Yes	Yes	No	N
192.57	192.67	HmD	4	50	7	Yes	Slight	6	No	No	No	N
192.67	192.71	HoF	17	50	7	No	Moderate	5	Yes	Yes	No	N
192.71	193.12	CpD	38	60	7	No	Severe	5	Yes	Yes	No	N
193.12	193.14	HuB	18	46	7	No	Severe	6	Yes	No	No	N
193.14	193.16	At	6	58	2	No	Moderate	6	No	No	No	Y
193.16	193.24	MhD	1.5	80	4	Yes	Slight	5	No	No	Yes	SWI
193.24	193.39	HoF	19	91	6	No	Severe	6	Yes	No	No	N
193.39	193.44	MhD	38	60	7	No	Severe	5	Yes	Yes	No	N
193.44	193.56	HoF	19	91	6	No	Severe	6	Yes	No	No	N
193.56	193.76	UnB	38	60	7	No	Severe	5	Yes	Yes	No	N
193.76	193.80	HuB	6	48	2	No	Moderate	5	No	No	No	Y
193.80	193.88	At	6	58	2	No	Moderate	6	No	No	No	Y
193.88	193.88	HuB	1.5	80	4	Yes	Slight	5	No	No	Yes	SWI
193.88	193.97	UnB	6	58	2	No	Moderate	6	No	No	No	Y
193.91	193.98	HuB	6	48	2	No	Moderate	5	No	No	No	Y
193.98	194.00	UpF	6	58	2	No	Moderate	6	No	No	No	Y
Hilltop Loop												
183.55	183.60	WeB	4	65	6	No	Moderate	5	No	No	No	N
183.60	183.67	CpD	18	46	7	No	Severe	6	Yes	No	No	N
183.67	183.78	CfB	4	50	7	No	Slight	5	No	No	No	N

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Table 7A-1
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Begin Milepost ^a	End Milepost ^a	Map Unit Symbol ^b	Percent Slope ^c	Depth To Bedrock (inches) ^{c,d}	Land Capability Class ^{c,e}	High Compaction Potential ^f	Erosion Potential ^{c,g}	Wind Erodibility Group ^c	Poor Revegetation Potential ^h	Stony/Rocky Soils ⁱ	Hydric Soil ^c	Prime Farmland ^{c,j}
183.78	183.90	CpD	18	46	7	No	Severe	6	Yes	No	No	N
183.90	184.06	WgB	4	46	6	No	Moderate	5	No	No	No	N
184.06	184.48	WeB	4	65	6	No	Moderate	5	No	No	No	N
184.48	184.60	HmD	17	50	7	No	Moderate	5	Yes	Yes	No	N
184.60	184.81	HkE	53	60	7	No	Severe	5	Yes	No	No	N
184.81	184.93	HoF	38	60	7	No	Severe	5	Yes	Yes	No	N
184.93	185.07	Bb	2	>65	1	No	Slight	3	No	No	No	SWI
185.07	185.15	HkE	53	60	7	No	Severe	5	Yes	No	No	N
185.15	185.35	HoF	38	60	7	No	Severe	5	Yes	Yes	No	N
185.35	185.76	CpD	18	46	7	No	Severe	6	Yes	No	No	N
185.76	185.90	WeB	4	65	6	No	Moderate	5	No	No	No	N
185.90	186.00	CpD	18	46	7	No	Severe	6	Yes	No	No	N
Benton Loop												
116.95	117.04	LkB	6	58	2	No	Moderate	6	No	No	No	Y
117.04	117.08	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
117.08	117.25	LkB	6	58	2	No	Moderate	6	No	No	No	Y
117.25	117.28	AbB	6	48	2	No	Moderate	5	No	No	No	Y
117.28	117.73	LkB	6	58	2	No	Moderate	6	No	No	No	Y
117.73	117.85	AbB	6	48	2	No	Moderate	5	No	No	No	Y
117.85	118.14	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
118.14	118.18	Ho	2	80	5	No	Slight	8	No	No	Yes	N
118.18	118.23	LkD	20	58	4	No	Severe	6	Yes	No	No	N
118.23	118.44	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
118.44	118.47	LkB	6	58	2	No	Moderate	6	No	No	No	Y

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118.47	118.55	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
118.55	118.62	KID	20	19	6	No	Severe	6	Yes	Yes	No	N
118.62	118.74	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
118.74	118.92	Ho	2	80	5	No	Slight	8	No	No	Yes	N
118.92	118.99	LaC	12	117	3	No	Moderate	6	No	Yes	No	SWI
118.99	119.06	LkB	6	58	2	No	Moderate	6	No	No	No	Y
119.06	119.13	AbC	12	0	3	No	Severe	5	No	Yes	No	SWI
119.13	119.18	WIC	12	80	3	No	Moderate	6	No	Yes	No	SWI
119.18	119.21	LkD	20	58	4	No	Severe	6	Yes	No	No	N
119.21	119.26	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
119.26	119.30	LkD	20	58	4	No	Severe	6	Yes	No	No	N
119.30	119.34	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
119.34	119.50	LkB	6	58	2	No	Moderate	6	No	No	No	Y
119.50	119.6	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
119.6	119.58	WIC	12	80	3	No	Moderate	6	No	Yes	No	SWI
119.58	119.63	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
119.63	119.64	LkD	20	58	4	No	Severe	6	Yes	No	No	N
119.64	119.77	LkB	6	58	2	No	Moderate	6	No	No	No	P
119.77	119.94	LkC	12	58	3	No	Moderate	6	No	No	No	SWI
119.94	120.08	KID	20	19	6	No	Severe	6	Yes	Yes	No	SWI
120.08	120.09	LkC	12	58	3	No	Moderate	6	No	No	No	N
120.09	120.12	KID	20	19	6	No	Severe	6	Yes	Yes	No	SWI
120.12	120.18	WIC	12	80	3	No	Moderate	6	No	Yes	No	N
120.18	120.20	WKE	53	15	7	No	Severe	7	Yes	Yes	No	SWI

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120.20	120.28	KIC	12	19	4	No	Moderate	6	Yes	Yes	No	N
120.28	120.34	KID	20	19	6	No	Severe	6	Yes	Yes	No	N
120.34	120.35	KIC	12	19	4	No	Moderate	6	Yes	Yes	No	N
120.35	120.44	LkB	6	58	2	No	Moderate	6	No	No	No	N

^a Mileposts for the Project are based on Transco Leidy Line A, and do not reflect actual pipeline footage.

^b Map unit names and descriptions are located in Appendix 7B.

^c As identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey and USDA NRCS Web Soil Survey.

^d Where no bedrock depth is identified, bedrock depth is assumed to be greater than the deepest depth noted in the USDA NRCS Web Soil Survey (>60, >65, >80).

^e Land capability classes are defined as follows:

Class 1 – soils with moderate limitations that restrict their use

Class 2 – soils with moderate limitations that reduce the choice of plants or that require moderate conservation practices

Class 3 – soils with severe limitations that reduce the choice of plants or that require moderate conservation practices, or both

Class 4 – soils with very severe limitations that reduce the choice of plants or that require very careful management

Class 5 – soils that are not likely to erode but have other limitations that limit their use, impractical to remove

Class 6 – soils that have severe limitations that make them generally unsuitable for cultivation

^f Compaction Potentials: Soils with Yes compaction potential are those with more than 18 percent clay in the surface horizon with somewhat poorly drained or wetter drainage class, as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey. Dashes indicate that the compaction potential is not Yes.

^g Erosion Potential: NRCS rating for the relative hazard of erosion of soil by water that may result from construction of forest roads and trails, as identified in USDA NRCS SSURGO database.

^h Poor Revegetation Potential: Soils with poor revegetation potential are those with greater than 15 percent slopes or with a very low available water storage (less than 2.5 inches of water per 40 inches of soil), as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey. Dashes indicate that revegetation potential is not poor.

ⁱ Stony/Rocky Soils: Soils with a Yes risk for introducing large rocks into the topsoil are those with 15 percent or more percent by weight of the surface horizon occupied by rock fragments greater than 3 inches in size or soils with bedrock within 39 inches of the surface, as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey. Dashes indicate that soils do not have a Yes risk for introducing large rocks into the topsoil.

^k Prime Farmland Soils: Y = yes; N = no; SWI = statewide importance.

Key:

N/A = Information Not Available

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Table 7A-2
Soil Characteristics and Affected Acreage Associated with Contractor Yards and Contractor Staging Areas

Map Unit Symbol ^a	Affected Acres ^b	Percent Slope ^c	Depth to Bedrock (inches) ^c	Land Capability Class ^d	High Compaction Potential ^e	Erosion Potential ^f	Wind Erodibility Group ^c	Poor Revegetation Potential ^g	Stony / Rocky Soils ^h	Hydric Soil ^b	Prime Farmland ⁱ
Hensel Replacement											
CY-003											
LdC	0.3	13	90	7	No	Moderate	6	No	No	No	N
Lr	8.6	2	90	1	No	Slight	5	No	No	No	P
CSA-018											
HmD	1.5	17	50	7	No	Moderate	5	No	No	No	N
CSA-019											
CgB	6.8	4	50	7	No	Slight	6	No	No	No	N
CpB	0.4	4	46	7	No	Slight	6	Yes	No	No	N
WeB	2.3	4	65	6	No	Moderate	5	No	No	No	N
CSA-020											
HoF	0.2	38	60	7	No	Severe	5	No	No	No	N
CSA-021											
At	<0.1	1.5	>80	4	No	Slight	5	No	No	Yes	SWI
HuB	4.2	6	>65	2	No	Moderate	6	No	No	No	P
CSA-022											
HuB	0.1	6	>65	2	No	Moderate	6	No	Yes	No	P
UnB	0.2	6	48	2	No	Moderate	5	Yes	Yes	No	P
UpF	2.4	35	48	7	No	Severe	7	No	No	No	N
Hilltop Loop											
CY-004											
Bb	0.2	2	>80	1	No	Slight	3	No	No	No	SWI
Lr	11.6	2	90	1	No	Slight	5	No	No	No	P

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Map Unit Symbol ^a	Affected Acres ^b	Percent Slope ^c	Depth to Bedrock (inches) ^c	Land Capability Class ^d	High Compaction Potential ^e	Erosion Potential ^f	Wind Erodibility Group ^c	Poor Revegetation Potential ^g	Stony / Rocky Soils ^h	Hydric Soil ^b	Prime Farmland ⁱ
CY-005											
WeB	6.0	4	65	6	No	Moderate	5	No	No	No	N
CY-008											
CfB	7.4	4	50	7	No	Slight	5	No	No	No	N
CpB	4.7	4	46	7	No	Slight	6	No	No	No	N
CpD	0.9	18	46	7	No	Severe	6	Yes	No	No	N
WeB	2.1	4	65	6	No	Moderate	5	No	No	No	N
CSA-014											
WeB	1.3	4	65	6	No	Moderate	5	No	No	No	N
CSA-015											
CpD	0.1	18	46	7	No	Severe	6	Yes	N/A	No	N
WeB	2.0	4	65	6	No	Moderate	5	No	No	No	N
CSA-016											
HmD	0.8	17	50	7	No	Moderate	5	Yes	Yes	No	N
WeB	0.4	4	65	6	No	Moderate	5	No	No	No	N
CSA-017											
CpD	1.2	18	46	7	No	Severe	6	Yes	No	No	N
Benton Loop											
CY-001											
LaB2	4.2	8	>80	2	No	Moderate	6	Yes	Yes	No	P
CY-002											
KIC	0.2	12	19	4	No	Moderate	6	Yes	Yes	No	N
LkB	12.9	6	58	2	No	Moderate	6	No	No	No	P
LkC	2.0	12	58	3	No	Moderate	6	No	No	No	SWI

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Table 7A-2
Soil Characteristics and Affected Acreage Associated with Contractor Yards and Contractor Staging Areas

Map Unit Symbol ^a	Affected Acres ^b	Percent Slope ^c	Depth to Bedrock (inches) ^c	Land Capability Class ^d	High Compaction Potential ^e	Erosion Potential ^f	Wind Erodibility Group ^c	Poor Revegetation Potential ^g	Stony / Rocky Soils ^h	Hydric Soil ^b	Prime Farmland ⁱ
CSA-008											
LkB	0.3	6	58	2	No	Moderate	6	No	No	No	P
LkC	0.2	12	58	3	No	Moderate	6	Yes	No	No	SWI
CY-009											
LkB	9.5	6	58	2	No	Moderate	6	No	No	No	P
LkC	6.8	12	58	3	No	Moderate	6	No	No	No	SWI
LkD	2.0	20	58	4	No	Severe	6	No	No	No	N
CY-010											
LkB	1.8	6	58	2	No	Moderate	6	No	No	No	P
LkC	0.1	12	58	3	No	Moderate	6	No	No	No	SWI
CSA-011											
LkB	0.2	6	58	2	No	Moderate	6	No	N/A	No	P
CSA-012											
LkB	0.8	6	58	2	No	Moderate	6	No	No	No	P
LkC	0.3	12	58	3	No	Moderate	6	No	No	No	SWI
CSA-013											
KIB	3.2	6	19	3	No	Moderate	6	No	Yes	No	SWI
KIC	2.5	12	19	4	No	Moderate	6	No	Yes	No	N
KID	1.7	20	19	6	No	Severe	6	Yes	Yes	No	N

**Table 7A-2
Soil Characteristics and Affected Acreage Associated with Contractor Yards and Contractor Staging Areas**

Map Unit Symbol ^a	Affected Acres ^b	Percent Slope ^c	Depth to Bedrock (inches) ^c	Land Capability Class ^d	High Compaction Potential ^e	Erosion Potential ^f	Wind Erodibility Group ^c	Poor Revegetation Potential ^g	Stony / Rocky Soils ^h	Hydric Soil ^b	Prime Farmland ⁱ
Notes:											
^a Map unit names and descriptions are located in Appendix 7B.											
^b Area in acres within construction workspace, in acres. All effects are temporary. If less than 0.1 acres then shown on table as <0.01.											
^c As identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey. Where no bedrock depth is identified, bedrock depth is assumed to be greater than the deepest depth noted in the USDA NRCS Web Soil Survey (>65, >70, >80).											
^d As identified in USDA NRCS SSURGO database. Land capability classes are defined as follows: Class 1 – soils with moderate limitations that restrict their use Class 2 – soils with moderate limitations that reduce the choice of plants or that require moderate conservation practices Class 3 – soils with severe limitations that reduce the choice of plants or that require moderate conservation practices, or both Class 4 – soils with very severe limitations that reduce the choice of plants or that require very careful management Class 5 – soils that are not likely to erode but have other limitations that limit their use, impractical to remove Class 6 – soils that have severe limitations that make them generally unsuitable for cultivation Class 7 – soils that have very severe limitations that make them unsuitable for cultivation											
^e Compaction Potentials: Soils with high compaction potential are those more than 18 percent clay in the surface horizon with somewhat poorly or wetter drainage class, as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey.											
^f Erosion Potential: NRCS rating for the relative hazard of erosion of soil by water that may result from construction of forest roads and trails, as identified in USDA NRCS SSURGO database.											
^g Poor Revegetation Potential: Soils with poor revegetation potential are those with greater than 15 percent slopes or have a low available water storage (less than 2.5 inches of water per 40 inches of soil, as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey.											
^h Stony/Rocky Soils: Soils with a high risk for introducing large rocks into the topsoil are those with 15 percent or more percent by weight of the surface horizon occupied by rock fragments greater than 3 inches in size or soils with bedrock within 29 inches of the surface, as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey.											
ⁱ Prime Farmland Soils: Y = yes; N = no; SWI = statewide importance. As identified in USDA NRCS SSURGO database.											
Key: N/A = Information Not Available											

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**Table 7A-3
Soil Characteristics And Affected Acreage Associated with New Aboveground Facilities and Existing Compressor Stations**

Map Unit Symbol ^a	Temp. Effect Acres ^b	Perm. Effect Acres ^c	Percent Slope ^d	Depth To Bedrock (inches) ^d	Land Capability Class ^e	High Compaction Potential ^f	Erosion Potential ^g	Wind Erodibility Group ^d	Poor Revegetation Potential ^h	Stony / Rocky Soils ⁱ	Hydric Soil ^d	Prime Farmland ^j
Compressor Station 607												
LaB	12.0	9.5	6	>70	2	No	Moderate	6	No	Yes	No	P
LaC	1.8	1.6	12	>70	3	No	Moderate	6	No	Yes	No	SWI
LcB	0.4	0.2	6	>70	7	No	Moderate	6	No	Yes	No	N
LcD	<0.1	0.0	17	>70	7	Yes	Severe	6	Yes	Yes	No	N
MoB	0.3	0.0	4	>70	3	No	Moderate	6	No	Yes	No	SWI
WIB	3.5	1.0	6	>70	2	No	Moderate	6	No	Yes	No	P
Compressor Station 610												
AeB2	0.9	0.0	8	>80	2	No	Moderate	5	No	No	No	P
HhB2	30.6	0.0	8	30	2	No	Moderate	6	No	Yes	No	SWI
HhC3	0.3	0.0	16	30	4	No	Severe	6	Yes	Yes	No	N
WbB2	1.2	0.0	6	>80	2	No	Moderate	5	No	No	No	P
WcC2	0.7	0.0	16	15	4	N/A	Severe	7	Yes	N/A	No	N
Compressor Station 620												
Ba	0.3	0.0	2	>70	2	No	Slight	5	No	Yes	No	A
BxB	0.4	0.0	6	>70	7	No	Moderate	6	No	Yes	No	N
CaB	7.0	4.5	6	30	2	No	Moderate	5	No	Yes	No	SWI
CaC	4.9	2.7	12	30	3	No	Moderate	6	No	Yes	No	SWI
LeB	22.6	15.5	6	58	2	No	Moderate	6	No	No	No	A
LeC	5.8	1.5	12	58	3	No	Moderate	6	No	No	No	SWI
MeB	0.7	0.0	6	98	2	No	Moderate	5	No	No	No	A
WKF	3.6	0.0	50	15	7	No	Severe	7	Yes	Yes	No	N
Valve Setting and Pig Launcher/Receiver at MP 116.95 (Benton Loop)												
LkB	<0.1	<0.1	6	58	2	No	Moderate	6	No	No	No	A

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**Table 7A-3
Soil Characteristics And Affected Acreage Associated with New Aboveground Facilities and Existing Compressor Stations**

Map Unit Symbol ^a	Temp. Effect Acres ^b	Perm. Effect Acres ^c	Percent Slope ^d	Depth To Bedrock (inches) ^d	Land Capability Class ^e	High Compaction Potential ^f	Erosion Potential ^g	Wind Erodibility Group ^d	Poor Revegetation Potential ^h	Stony / Rocky Soils ⁱ	Hydric Soil ^d	Prime Farmland ^j
LkC	0.3	0.3	12	58	3	No	Moderate	6	No	No	No	SWI
Valve Setting and Pig Launcher/Receiver at MP 188.15 (Hensel Replacement)												
HmD	0.7	0.7	17	50	7	No	Moderate	5	No	No	No	N
Notes: ^a Map unit names and descriptions are located in Appendix 7B. ^b Area in acres within construction workspace, in acres. ^c Area within permanent facility boundary, in acres. ^d As identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey. Where no bedrock depth is identified, bedrock depth is assumed to be greater than the deepest depth noted in the USDA NRCS Web Soil Survey (>65, >70, >80). ^e As identified in USDA NRCS SSURGO database. Land capability classes are defined as follows: Class 1 – soils with moderate limitations that restrict their use Class 2 – soils with moderate limitations that reduce the choice of plants or that require moderate conservation practices Class 3 – soils with severe limitations that reduce the choice of plants or that require moderate conservation practices, or both Class 4 – soils with very severe limitations that reduce the choice of plants or that require very careful management Class 5 – soils that are not likely to erode but have other limitations that limit their use, impractical to remove Class 6 – soils that have severe limitations that make them generally unsuitable for cultivation Class 7 – soils that have very severe limitations that make them unsuitable for cultivation ^f Compaction Potentials: Soils with high compaction potential are those more than 18 percent clay in the surface horizon with somewhat poorly or wetter drainage class, as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey. ^g Erosion Potential: NRCS rating for the relative hazard of erosion of soil by water that may result from construction of forest roads and trails, as identified in USDA NRCS SSURGO database. ^h Poor Revegetation Potential: Soils with poor revegetation potential are those with greater than 15 percent slopes or have a low available water storage (less than 2.5 inches of water per 40 inches of soil, as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey. ⁱ Stony/Rocky Soils: Soils with a high risk for introducing large rocks into the topsoil are those with 15 percent or more percent by weight of the surface horizon occupied by rock fragments greater than 3 inches in size or soils with bedrock within 29 inches of the surface, as identified in USDA NRCS SSURGO database and USDA NRCS Web Soil Survey. ^j Prime Farmland Soils: Y = yes; N = no; SWI = statewide importance. As identified in USDA NRCS SSURGO database. Key: Perm. = Permanent Temp. = Temporary												

APPENDIX S3-3

**TRANSCO PROJECT SPECIFIC UPLAND EROSION
CONTROL, REVEGETATION, AND MAINTENANCE
PLAN**



Transcontinental Gas Pipe Line Company, LLC

**Transco Project-Specific Upland Erosion Control,
Revegetation, and Maintenance Plan**

Leidy South Project

July 2019

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I. APPLICABILITY

- A. The intent of this Plan is to identify baseline mitigation measures for minimizing erosion and enhancing revegetation for the Transcontinental Gas Pipe Line Company, LLC (Transco) Leidy South Project (Project). Transco will specify in its application for a new FERC authorization and in prior notice and advance notice filings, any individual measures in this Plan it considers unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Transco will also explain how those alternative measures would achieve a comparable level of mitigation. Deviations from the FERC Plan proposed by Transco to reflect site-specific conditions are **bolded** in the text.

Once the Project is authorized, Transco will request further changes as variances to the measures in the Transco Plan. The Director of the Office of Energy Projects (Director) will consider approval of variances upon Transco's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;
2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or
3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Project-related impacts on wetland and waterbody systems are addressed in the Transco Project-specific Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures).

II. SUPERVISION AND INSPECTION

A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.
2. Environmental Inspectors shall have peer status with all other activity inspectors.
3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the FERC's Orders, stipulations of other environmental permits or approvals, or landowner easement agreements; and to order appropriate corrective action.

B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Inspecting construction activities for compliance with the requirements of the Transco Plan, Transco Procedures, the environmental conditions of the FERC's Orders, the mitigation measures (as approved and/or modified by the Order), other environmental permits and approvals, and environmental requirements in landowner easement agreements.
2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;
3. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;
4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;
5. Identifying erosion/sediment control and soil stabilization needs in all areas;
6. Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitats;
7. Verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive environmental resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitats; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;
8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;
9. Advising the Chief Construction Inspector when environmental conditions (such as wet weather or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing or excessive compaction;
10. Ensuring restoration of contours and topsoil;
11. Verifying that the soils imported for agricultural or residential use are certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;
12. Ensuring that erosion control devices are properly installed to prevent sediment flow into sensitive environmental resource areas (e.g., wetlands, waterbodies,

- cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;
13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:
 - a. on a daily basis in areas of active construction or equipment operation;
 - b. a minimum of once a week in areas with no construction or equipment operation; and
 - c. within 24 hours of each 0.5 inch of rainfall.
 14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;
 15. Keeping records of compliance with the environmental conditions of the FERC's Orders, and the mitigation measures in the Transco application submitted to the FERC, and other federal or state environmental permits during active construction and restoration;
 16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase; and
 17. Verifying that locations for any disposal of excess construction materials for beneficial reuse comply with section III.E.

III. PRECONSTRUCTION PLANNING

Transco will do the following before construction:

A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, additional temporary workspaces (ATWS) areas, pipe storage and contractor yards, borrow and disposal areas, access roads) that would be needed for safe construction. Transco will ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies.
2. Transco will expand any required cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas.
3. Plan construction sequencing to limit the amount and duration of open trench sections, as necessary, to prevent excessive erosion or sediment flow into sensitive environmental resource areas.

B. DRAIN TILE AND IRRIGATION SYSTEMS

1. Attempt to locate existing drain tiles and irrigation systems.
2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.
3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.
4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the Project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

Determine methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, slash, mats, garbage, drill cuttings and fluids, excess rock) throughout the construction process. Disposal of materials for beneficial reuse must not result in adverse environmental impact and is subject to compliance with all applicable survey, landowner or land management agency approval, and permit requirements.

F. AGENCY COORDINATION

Transco will coordinate with the appropriate local, state, and federal agencies as outlined in this Plan and/or required by the FERC's Orders.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.
2. Develop specific procedures in coordination with the appropriate agencies to prevent the introduction or spread of invasive species, noxious weeds, and soil pests resulting from construction and restoration activities. Refer to the Transco Project-specific Noxious and Invasive Plant Management Plan.

3. Develop specific procedures in coordination with the appropriate agencies and landowners, as necessary, to allow for livestock and wildlife movement and protection during construction.
4. Develop specific blasting procedures in coordination with the appropriate agencies that address pre- and post-blast inspections; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs. Use appropriate methods (e.g., blasting mats) to prevent damage to nearby structures and to prevent debris from entering sensitive environmental resource areas. Refer to the Transco Project-specific Blasting Plan.

G. SPILL PREVENTION AND RESPONSE PROCEDURES

Transco will develop project-specific Spill Prevention and Response Procedures, as specified in section IV of the staff's Procedures. A copy will be filed with the Secretary of the FERC (Secretary) prior to construction and made available in the field on each construction spread. Refer to the Transco Project-specific Spill Plan for Oil and Hazardous Materials.

H. RESIDENTIAL CONSTRUCTION

For all properties with residences located within 50 feet of construction work areas, Transco will avoid removal of mature trees and landscaping within the construction work area unless necessary for safe operation of construction equipment, or as specified in landowner agreements; fence the edge of the construction work area for a distance of 100 feet on either side of the residence; and restore all lawn areas and landscaping immediately following clean-up operations, or as specified in landowner agreements. If seasonal or other weather conditions prevent compliance with these time frames, maintain and monitor temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration.

I. WINTER CONSTRUCTION PLANS

Transco has filed a Project-specific Winter Construction Plan with the FERC application.

The plan addresses:

1. winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, topsoil stripping);
2. stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions); and
3. final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

IV. INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance will be limited to the construction right-of-way, extra work space areas, ATWS areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders. Any Project-related ground disturbing activities outside these areas will require prior Director approval. This requirement does not apply to activities needed to comply with the Plan and Procedures (i.e., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside of authorized areas are subject to all applicable survey and permit requirements, and landowner easement agreements.
2. **The Transco construction rights-of-way widths in upland locations for this Project will include:**
 - a. **90 feet for the Hensel Replacement and Hilltop Loop; and**
 - b. **150 feet for the Benton Loop.**

Transco will provide extra work spaces and ATWS areas outside of the construction rights-of-way for full construction right-of-way topsoil segregation and to ensure safe construction where required by topographic conditions (e.g., side-slopes) or soil limitations. Extra work space and ATWS areas may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

Project use of extra work space and ATWS areas outside of authorized work areas is subject to landowner or land management agency approval and compliance with all applicable survey and permit requirements. **Transco will request variances (per section I.A) for these additional areas and will report the requested and approved variances in its weekly construction reports to FERC.** The following materials will be included in the reports:

- a. the location of each additional area by milepost and reference to previously filed alignment sheets showing the additional areas;
- b. identification of the filing at FERC containing evidence that the additional areas were previously surveyed; and
- c. a statement that landowner approval has been obtained and is available in project files.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, Transco will prevent the mixing of topsoil with subsoil by stripping

topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:

- a. cultivated or rotated croplands, and managed pastures;
 - b. residential areas;
 - c. hayfields; and
 - d. other areas at the landowner's or land managing agency's request.
2. In residential areas, importation of topsoil is an acceptable alternative to topsoil segregation.
 3. Where topsoil segregation is required:
 - a. segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil); and
 - b. make every effort to segregate the entire topsoil layer in soils with less than 12 inches of topsoil.
 4. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.
 5. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as a fill material.
 6. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary.

C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.
2. Probe all drainage tile systems within the area of disturbance to check for damage.
3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.
4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction. Refer to the Transco Project-specific Traffic and Transportation Management Plan.
2. If crushed stone access pads are used in residential or agricultural areas, place the stone on synthetic fabric to facilitate removal.
3. Minimize the use of tracked equipment on public roadways. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions. Repair any damages to roadway surfaces, shoulders, and bar ditches.

F. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers
 - a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.
 - b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing in Pennsylvania (closer spacing shall be used if necessary):

<u>Slope (%)</u>	<u>Spacing (feet)</u>
5 - 15	300
>15 - 30	200
>30	100

- c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.

- d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental resource areas.

2. Temporary Trench Plugs

Temporary trench plugs are intended to segment a continuous open trench prior to backfill.

- a. Temporary trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.
- b. Position temporary trench plugs, as necessary, to reduce trenchline erosion and minimize the volume and velocity of trench water flow at the base of slopes.

3. Sediment Barriers

Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources.

- a. Sediment barriers may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.
- b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.
- c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

4. Mulch

- a. Apply mulch on all slopes (except in cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.
- b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

- c. Mulch all disturbed upland areas (except cultivated cropland) before seeding if:
 - (1) final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or
 - (2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.
- d. If mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.
- e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).
- f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.
- g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.
- h. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

V. RESTORATION

A. CLEANUP

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup.

Transco will file with the Secretary for the review and written approval of the Director, a Winter Construction Plan (as specified in section III.I). Refer to the Transco Project-specific Winter Construction Plan.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.
3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.
4. Remove excess rock **in excess of 4 inches** from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.
5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.
6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.
7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers
 - a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.
 - b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.
 - c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.
 - d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or

wetland. Install trench breakers at wetland boundaries, as specified in the Transco Procedures.

- e. Trench breakers will be installed in wetlands to prevent water from traveling along the trench and altering micro-watersheds within the wetlands.

2. Permanent Slope Breakers

- a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, stone, or some functional equivalent.
- b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

<u>Slope (%)</u>	<u>Spacing (feet)</u>
5 - 15	300
>15 - 30	200
>30	100

- c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.
- d. **Unless restricted by state permitting**, slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

- 1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling. Refer to the Transco Project-specific Agricultural Construction and Monitoring Plan.
3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

- a. Transco will ensure successful revegetation of soils disturbed by Project-related activities, except as noted in section V.D.1.b.
- b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as practicable after application.

3. Seeding Requirements

- a. Prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.
- b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in cultivated croplands unless requested by the landowner.
- c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Dormant seeding or temporary seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector. Lawns may be seeded on a schedule established with the landowner.

- d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a through V.D.3.c.
- e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.
- f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).
- g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands, offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

- a. signs;
- b. fences with locking gates;
- c. slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and
- d. conifers or other appropriate trees or shrubs across the right-of-way.

VII. POST-CONSTRUCTION ACTIVITIES AND REPORTING

A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas, as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful when upon visual survey, crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.

Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in agricultural areas until restoration is successful.
4. Restoration will be considered successful when the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless otherwise approved by the landowner or land managing agency per section V.A.6), revegetation is successful, and proper drainage has been restored.
5. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands will not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case will routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.
6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and permanent access roads as necessary.

B. REPORTING

1. Transco will maintain records that identify by milepost:
 - a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;
 - b. acreage treated;
 - c. dates of backfilling and seeding;
 - d. names of landowners requesting special seeding treatment and a description of the follow-up actions;
 - e. the location of any subsurface drainage repairs or improvements made during restoration; and
 - f. any problem areas and how they were addressed.

2. Transco will file with the Secretary quarterly activity reports documenting the results of follow-up inspections required by section VII.A.1; any problem areas, including those identified by the landowner; and corrective actions taken for at least 2 years following construction.

APPENDIX S3-4

**CONSTRUCTION SPILL PREVENTION AND RESPONSE
PROCEDURES FOR OIL AND HAZARDOUS MATERIALS**



Transcontinental Gas Pipe Line Company, LLC

**Construction Spill Prevention and Response Procedures
for Oil and Hazardous Materials**

Leidy South Project

July 2019
(Revised May 2020)



Transcontinental Gas Pipe Line Company, LLC

**Construction Spill Prevention and Response Procedures
for Oil and Hazardous Materials**

Leidy South Project

July 2019
(Revised August 2020)

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SECTION 1 - GENERAL INFORMATION

1.1 SPILL PLAN REQUIREMENTS

Contractor shall determine the approximate quantities of oil or oil-like substances (including fuels) and any hazardous materials or substances that will be present or stored at the work site(s) to assist Company's Environmental Inspector in identifying the appropriate spill plan that shall be applicable for the Work. The quantities carried by fuel trucks that are on site temporarily to refuel equipment shall not be included in Contractor's calculation of the amount of oil or oil-like substances stored at any facility/site.

1.1.1 Company Construction Spill Plan For Oil and Hazardous Materials

If during the course of Work, 1,320 gallons or less of oil or oil-like substances or hazardous materials will be present or stored at any facility/site, Contractor shall comply with and complete the remaining sections and requirements of this document (i.e., Construction Spill Plan). Contractor's field personnel shall be familiar with this plan before initiating any onsite activities and shall follow all requirements and responsibilities of this plan as they are listed for Contractor. Contractor shall provide, prior to start of the Work but no later than the pre-job meeting, all of the initial information required by the applicable/designated plan. Contractor shall provide Company with additional information to keep the plan current.

1.1.2 U.S. Environmental Protection Agency Tier I Qualified Facility Spill Prevention, Control, and Countermeasure (SPCC) Plan

If during the course of Work, greater than 1,320 gallons of oil or oil-like substances but less than 10,000 gallons with no containers greater than 5,000 gallons in capacity will be present or stored at any facility/site, Contractor shall comply with and complete the remaining sections and requirements of this document PLUS comply with and complete the requirements of the "U.S. Environmental Protection Agency Tier I Qualified Facility SPCC Plan," attached to this section, or develop a full SPCC Plan. Contractor's field personnel shall be familiar with this plan before initiating any onsite activities and shall follow all requirements and responsibilities of this plan as they are listed for Contractor. Contractor shall provide, prior to start of the Work but no later than the pre-job meeting, all of the initial information required by the plan. Contractor shall provide Company with additional information to keep the plan current.

1.1.3 U.S. Environmental Protection Agency Full SPCC Plan

If during the course of Work, 5,000 gallons or more of oil or oil-like substances contained in a single container, or a total of 10,000 gallons or more, will be present or stored at any facility/site, Contractor shall comply with and complete the remaining section of this document PLUS comply with and complete the requirements of a full U.S. Environmental Protection Agency SPCC Plan, which must be reviewed and approved by a professional engineer. Contractor's field personnel shall be familiar with this plan before initiating any onsite activities and shall follow all requirements and responsibilities of this plan as they are listed for Contractor. Contractor shall provide, prior to start of the Work but no later than the pre-job meeting, all of the initial information required by the plan. Contractor shall provide Company with additional information to keep the plan current.

1.2 PROJECT LOCATION AND DESCRIPTION

This Construction Spill Plan was developed for the following project:

*Leidy South Project**Compressor Station 607**Compressor Station 610**Compressor Station 620**Benton Loop**Hilltop Loop**Hensel Replacement**Installation of Leidy Line D**Abandonment of Leidy Line A***Definitions:**

Oil is defined in the SPCC regulations as oil of any kind or in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil and oily mixtures.

Hazardous Material as defined by the DOT includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter. Hazardous Materials typically found on construction projects include, but are not limited to, petroleum oils, hydraulic fluids, engine coolants (ethylene glycol), x-ray film developer, chemical additives, pipe coatings, used abrasive blasting media, etc.

Contractor Responsibility:

The Contractor shall be familiar with this Construction Spill Plan and its contents prior to commencing any construction-related activities. All workers handling fuels, oils or other hazardous materials shall be properly trained. The Plan will be followed to prevent any spills that may occur during the project and to mitigate any spills that do occur.

Company representatives assigned to this project include:

Manager, Operations (MO): *To be inserted*

Chief Inspector (CI): *To be inserted*

Company Lead Environmental Specialist: *To be inserted*

Land, GIS, & Permits Lead: *To be inserted*

SECTION 2 - DRAINAGE PATTERNS AND SPILL PREVENTION PRACTICES

2.1 DRAINAGE PATTERNS

Insert a brief description about the general drainage patterns at the work site(s).

Responsibility: Chief Inspector

Construction and Technicians will be familiar with drainage patterns for the project and be prepared to implement measures to control any release.

2.2 SPILL PREVENTION PRACTICES

The Contractor shall take the following precautions to ensure that an oil or hazardous materials spill does not occur:

A. Containers/Pumps/Concrete Coating

- (1) All containers of oil, fuel, or hazardous materials shall be stored on level ground at least 100 feet from any waterway, wetland, or designated municipal watershed area or as prescribed by a project specific permit or agency. All containers should be located within temporary containment.
- (2) Temporary containment will include, but not be limited to, temporary hay bale berms with plastic sheets underlining the entire contained area and it is recommended that these areas be inspected daily or after any significant precipitation event.
- (3) Containment areas shall be capable of containing 100% of the volume of the single largest container of hazardous material being stored plus sufficient freeboard to hold the 25 year/24 hour storm.
- (4) All container storage areas shall be routinely inspected for integrity purposes. If hazardous wastes are being stored a weekly inspection must be documented.
- (5) Leaking and/or deteriorated containers shall be replaced as soon as the condition is first detected with clean-up measures immediately taking place.
- (6) No incompatible materials shall be stored in the same containment area.
- (7) No container storage areas shall be left unsecured during non-work hours.
- (8) Accumulated rainwater in the containment areas must be inspected prior to release to the ground; it must be free of sheens or other hazardous materials.
- (9) Pumps operating within 100 feet of a waterbody or wetland boundary shall utilize the appropriate agricultural or industrial grade containers/materials as a secondary containment system to prevent spills.
- (10) Concrete coating operations shall not be performed within 100 feet of a wetland or waterbody unless the location is an existing industrial site designated for such use. If no reasonable alternatives exist, consult with the EI and Company Environmental Lead for other options.

B. Tanks

- (1) The Contractor shall operate only those tanks that meet the requirements and specifications of applicable regulations and that are surrounded with temporary containment as described above.

- (2) Self-supporting tanks shall be constructed of materials compatible with its contents.
- (3) All tanks shall be routinely inspected for integrity purposes.
- (4) Vehicle mounted tanks shall be equipped with flame/spark arrestors on vents to ensure that self-ignition does not occur.
- (5) Tanks will not be used to store incompatible materials in sequence unless first thoroughly decontaminated.
- (6) Any tank utilized for storing different products between construction locations will be thoroughly decontaminated prior to refilling.

C. Unloading/Loading Areas

- (1) If it is necessary during the project, re-fueling and transferring of liquids shall only occur in pre-designated locations that are on level ground and at least 100 feet from any waterway. This activity must be continuously manned (minimum of two attendants plus a Company inspector) to ensure that overfilling, leaks, or spills do not occur. In addition, all equipment must be surrounded by temporary containment as described above.

Where conditions require construction equipment (e.g., Bobcat/front-end loader/excavator) to be re-fueled within 100 feet of any waterway, or as prescribed by a project specific permit, the above requirements shall also apply and will be strictly enforced.

- (2) All service vehicles used to transport fuel must travel only on approved access roads and workspace and be equipped with an appropriate number of fire extinguishers and an oil spill response kit as identified in Appendix C.

D. Leidy South- Hensel Replacement- Abandonment of Leidy Line A

- (1) During the abandonment grouting process, visual inspection of the limits of disturbance and alignment of the proposed abandonment, in conjunction with monitoring the volume of fluids will be accomplished to identify any inadvertent return or spill of the cementitious grout. In the event that a spill or an inadvertent return occurs, abandonment operations will temporarily cease while measures to mitigate the spill or inadvertent return are employed. These measures will at a minimum include; notification to construction supervision and appropriate regulatory agencies, surrounding the area with the approved sediment barrier, collection of fluids that have accumulated at the land surface, containerizing the fluids, and characterization for proper disposal. The ground surface at the inadvertent return or spill location will be restored to pre-existing grade and conditions.

SECTION 3 - EMERGENCY RESPONSE PROCEDURES

This section provides a generic description of emergency response procedures to be performed to address oil and hazardous materials spills at the job site. Each response will vary depending upon the nature and extent of the incident. However, the general procedures outlined below will be followed.

3.1 CONTRACTOR RESPONSIBILITIES

- (1) The Contractor must designate both an Emergency Coordinator (EC) and an Alternate EC for the project.
- (2) The Contractor is responsible for immediately and appropriately addressing all spills that occur directly as a result of construction-related activities.
- (3) For all spills the internal notification requirements of this Plan need to be followed.
- (4) The Contractor shall supply the necessary manpower, PPE, and spill response equipment to immediately and appropriately address all spills that directly occur as a result of construction-related activities.
- (5) Ensure that all emergency spill response equipment and PPE is well-stocked and in good condition. Replace used materials immediately after a response. .
- (6) If the situation warrants, the Contractor, in consultation with the CI, shall immediately notify any local emergency spill response contractors for assistance.
- (7) The Contractor shall be responsible for hiring a Company approved emergency spill response contractor if the nature of the incident requires it.
- (8) The Contractor is responsible for immediately notifying the CI, EI or Operations Manager of any spills.

3.2 COMPANY RESPONSIBILITIES

- (1) The Company shall be responsible for ensuring that the Contractor adequately follows the procedures outlined in this Plan at all times.
- (2) The Company shall be responsible for all verbal and written external notifications made to any regulatory agency or any local emergency responders.

3.3 EMERGENCY CONTACTS

Table I (Appendix A) provides a list of Company and Contractor emergency contacts.

3.4 DUTIES OF CHIEF INSPECTOR OR MANAGER, OPERATIONS.

The duties of the CI, EI or MO for reportable spills include the following:

- (1) Determine the source, character, amount, and extent of the spill.
- (2) Assess the potential hazards to the job site, environment, and surrounding community and contact the Construction Safety Representative if any hazards are detected.
- (3) Evacuate the area if necessary.

- (4) Report the spill in accordance with the internal notification procedures outlined in Section 5.1 and the external notification procedures outlined in Section 5.2.
- (5) Commit manpower and equipment for minor incidents that can be reasonably remediated by the Contractor.
- (6) Oversee Contractor's spill response efforts to contain and control all spills to ensure they adequately follow the procedures outlined in this Plan.
- (7) Document the Contractor's response effort, including taking photographs wherever possible.
- (8) Generate an Emergency Incident Report (form WGP-0187).

SECTION 4 - EMERGENCY SPILL RESPONSE AND PERSONAL PROTECTIVE EQUIPMENT

Each construction crew (including cleanup crews) shall have on-hand sufficient supplies, as Identified in Appendix C; of absorbents, barrier materials, and personal protective equipment (PPE) to allow for the rapid containment and recovery of any spilled material.

SECTION 5 - SPILL NOTIFICATION PROCEDURES**5.1 INTERNAL NOTIFICATIONS**

- (1) All spills are to be immediately reported to the CI, EI or MO who will immediately contact The Security Operations Center (SOC). Table I (Appendix A) includes a list of emergency contacts.
- (2) The person reporting the spill/release should use the checklist in Appendix B to ensure that the minimum information needed is collected in order to make a report.
- (3) The SOC is responsible for generating a Concern Report in Gensuite and notifying the appropriate Environmental Specialist.
- (4) The Environmental Specialist will review the Concern Report and “escalate” or “close” the concern as appropriate.

5.2 EXTERNAL NOTIFICATIONS

- (1) The CI, EI and or MO will consult with the appropriate Company Lead Environmental Specialist and determine who will be responsible for any necessary first-response notifications to an emergency spill response team to help contain the spill. If the spill occurs offshore, refer to the Offshore Spill Response Plan (OSRP).
- (2) After all required immediate internal notifications are made by the SOC, the Company Lead Environmental Specialist and the SOC shall confer and use the gathered information to make any necessary subsequent verbal and written notifications to regulatory agencies.
- (3) If a spill poses an immediate threat to human health or the environment, the CI, EI or MO shall immediately contact the Local Emergency Planning Committee (LEPC). When determining if the LEPC should be contacted, any gas release to the atmosphere must be taken into consideration. Note: Linear Projects may extend through multiple LEPC jurisdictions. As a result, all jurisdictions must be listed below.

The appropriate LEPC is:

Name:	<i>To be inserted</i>
Organization:	<i>To be inserted</i>
Phone Number:	<i>To be inserted</i>

5.3 EMERGENCY SPILL RESPONSE CONTRACTORS

The Company has arrangements with several emergency spill response contractors to address emergency responses beyond the capabilities of the Contractor.

If necessary, the following firms could be utilized for this project:

Company:	<i>To be inserted</i>
Name:	_____
Location:	_____
Phone Number:	_____
Company:	_____
Name:	_____
Location:	_____
Phone Number:	_____

5.4 LOCAL EMERGENCY RESPONDERS

The Contractor or the CI (or MO) may call the following local emergency responders should their assistance be required: Note: Linear Projects may extend through multiple Emergency Responder areas. Contractor must insure all jurisdictions are listed. Use attachments as needed.

Service	Telephone Number
Emergency Medical Services	<i>To be inserted</i>
Hospital	<i>To be inserted</i>
Fire	<i>To be inserted</i>
Police	<i>To be inserted</i>

SECTION 6 – CLEAN-UP PROCEDURES

The following section outlines specific procedures to be followed when addressing spills:

6.1 SPILLS

- (1) Small spills and leaks must be remediated immediately. Use adsorbent pads wherever possible.
- (2) Restrict spills to the containment area if possible by stopping or diverting flow.
- (3) If the spill exceeds the containment structure's capacity, immediately construct additional containment using sandbags or fill material. Every effort must be made to prevent the spills from entering a water body.
- (4) If a spill reaches a water body, immediately place oil booms downstream in order to contain the material. As soon as possible, remove the floating layer with absorbent pads.
- (5) After all recoverable spilled material has been collected, place all contaminated PPE, spill clean-up equipment, and any impacted soil into appropriate containers.
- (6) For significant quantities of impacted soils, construct temporary waste piles using plastic sheets. This material should subsequently be transferred into lined roll-off boxes as soon as feasible.
- (7) The Company Lead Environmental Representative will coordinate all waste characterization, profiling, and disposal activities.

6.2 EQUIPMENT CLEANING/STORAGE

- (1) Upon completion of remedial activities, the Contractor shall be responsible for decontaminating reusable emergency response equipment and PPE.
- (2) The Contractor shall be responsible for replacing any spent emergency response equipment and PPE prior to resuming construction-related activities.
- (3) Decontamination rinse fluids shall be collected and containerized. The Company Lead Environmental Representative will coordinate waste characterization and disposal activities.
- (4) Reusable PPE shall be tested and inventoried prior to being placed back into service.

6.3 WASTE DISPOSAL

The Contractor may be responsible for waste management and waste disposal or any waste generated as the result of a spill or materials generated as part of the project. (review contract language and project specifics); however, The Lead Environmental Representative will coordinate and approve all waste characterization, profiling, and disposal activities. For the Leidy South Project the anticipated materials to be generated requiring disposal may include; pigging waste (pipeline liquids and rubber or foam pigs), waste cementitious grout, and hydrostatic testing water. All waste generated will be characterized for disposal and ultimately disposed of at a permitted disposal facility. Detailed information pertaining to actual disposal facility information will be included on the Project Specific Waste Management Plan to be completed just prior to the start of construction.

APPENDIX A

TABLE I: LIST OF EMERGENCY CONTACTS

Names	Job Description	Phone Number
Security Operations Center		855-945-5762 (24-hrs)
<i>To be inserted</i>	Chief Inspector	<i>to be inserted by</i>
<i>To be inserted</i>	Manager, Operations	<i>to be inserted by</i>
<i>To be inserted</i>	Company Lead Environmental Specialist	<i>to be inserted by</i>
Contractor	Job Description	Phone Number
<i>To be inserted</i>	Emergency Coordinator	<i>to be inserted by</i>
<i>To be inserted</i>	Alternate Emergency Coordinator	<i>to be inserted by</i>
Regulatory Agencies	Name	Phone Number
	National Response Center	800-932-0586
	DEP Northeast Region (Compressor Station 607 & 620)	570-826-2511
	DEP Northcentral Region (Compressor Station 610, Hilltop Loop, Hensel Replacement & Benton Loop)	570-327-3636
	Clinton County Conservation District (Hensel Replacement & Hilltop Loop)	570-726-3798
	Lycoming County Conservation District (Benton Loop)	570-433-3003
	Luzerne County Conservation District (Compressor Station 607)	570-674-7991
	Columbia County Conservation District (Compressor Station 610)	570-784-1310
	Schuylkill County Conservation District (Compressor Station 620)	570- 622-3742 ext. 5

APPENDIX B

SPILL/RELEASE REPORTING CHECKLIST

APPENDIX B SPILL / RELEASE REPORTING CHECKLIST		
Please see below for a summary of information to be obtained for reporting spills / releases:		Comments
Name Title, Company and Phone number of Person Reporting Incident	<input type="checkbox"/>	
Spill / Release Location, Project, Facility, ROW (State, county, city, township, range, address, coordinates, if on ROW-nearest crossroads)	<input type="checkbox"/>	
Date of Spill/Release	<input type="checkbox"/>	
Was material released as a liquid, solid, or gas	<input type="checkbox"/>	
Description of material released (oil, hydraulic fluid, glycol, condensate, etc.)	<input type="checkbox"/>	
Time of Spill/Release	<input type="checkbox"/>	
Estimated amount (volume or weight) of material spilled / released (Specify unit - gal, ft³, lbs, etc.)	<input type="checkbox"/>	
Has spill / release been stopped?	<input type="checkbox"/>	
Duration of Spill/Release (Date and Time release was stopped)	<input type="checkbox"/>	
Affected Media (Land, Water, Air, secondary containment, building)	<input type="checkbox"/>	
Has affected area of spill / release been cleaned up?	<input type="checkbox"/>	
Duration of spill / release cleanup activities	<input type="checkbox"/>	
Estimated volume and/or weight of cleaned up material. Specify type of material removed, such as soil, concrete, pads, and unit of measure (gal, ft³, lbs, etc.)	<input type="checkbox"/>	
Containment of cleaned up material (drum, tank, roll-off) and location (spill site, contractor yard, station)	<input type="checkbox"/>	
Brief description of cause of spill / release	<input type="checkbox"/>	
Complete Form WGP-0187	<input type="checkbox"/>	
Contacted:	Supervisor	<input type="checkbox"/>
	Pipeline Control	<input type="checkbox"/>
	Environmental Services Manager	<input type="checkbox"/>
	Environmental Field Rep	<input type="checkbox"/>
Notes:		

APPENDIX C**EMERGENCY SPILL RESPONSE AND PERSONAL PROTECTIVE EQUIPMENT****Equipment Inventory Option (to be determined by Company):**

_____ Option 1 – Adequate supplies as determined by the Contractor (min = supplies to respond to a 5 gal spill).

_____ Option 2 – As Directed by a Company representative with below minimum requirements.

Equipment	Quantity	Location
(1) chemical spill kit	1	Office or storage accessible within 1 hour
(2) oil spill kit	1	adjacent to work space and fuel service vehicles

SPILL KIT CONTENTS:

(1) 1 bag loose chemical pulp	3 chemical pillows (18" x 18")
3 chemical socks (48" x 3")	10 chemical mats/pads (24" x 24")
1 box contractor-sized, 6-mil, disposal polyethylene bags (w/ ties)	
blank drum labels	one 30-gallon PE open-head drum or equal
2 shovels	
(2) 1 oil boom (100' x 3")	10 oil pillows (18" x 18")
10 oil socks (48" x 3")	25 oil mats/pads (24" x 24")
1 box contractor-sized, 6-mil, disposal polyethylene bags (w/ ties)	
blank drum labels	three, 55-gallon PE open-head drums
4 shovels	
Detergent (Dawn, Simple Green, etc...) Spray Bottles	

PERSONAL PROTECTIVE EQUIPMENT:

The inventory of PPE should include enough for at least 4 responders reacting to a significant leak/spill including the below items.

Splash goggles, half-face respirators (w/ cartridges for benzene),
Tyvek suits, nitrile gloves, waterproof/ chemical resistant hip-waders

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*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT L-5
MODULE S4- MITIGATION PLAN**



Transcontinental Gas Pipe Line Company, LLC

**Requirement L-5, Environmental Assessment
Module S4 – Mitigation Plan**

Leidy South Project – Compressor Station 607

September 2019
(Revised August 2020)

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(Revised May 2020)

S4.B1.i-iii Repair, Rehabilitation, and Restoration Actions of Impacted Resources

(Revised May 2020)

S4.B.2 Proposed Preservation and Maintenance Operations to Reduce or Eliminate Project Impacts

S4.C Compensatory Mitigation *(Revised May 2020)*

S4.D Post-Construction Wetland and Watercourse Monitoring Plan

(Revised August 2020)

References

Appendices

Appendix S4 – 1 Transco Project-Specific Wetland and Waterbody Construction and Mitigation Procedures

Appendix S4 – 2 Invasive Species Management Plan *(Added August 2020)*

MODULE S4

MITIGATION PLAN

S4.A.1-2 Resource Impact Avoidance and Minimization Measures

Transco has sited the Project to avoid and minimize effects to wetland and watercourse to the greatest extent practicable while maintaining constructability and safety, as described in greater detail in the Section S3.F of Module 3. Given the nature of the Project, total avoidance of wetlands, streams, and floodways is not feasible and therefore installation of the Compressor Station 607 will result in temporary impacts to wetlands.

S4.B.1.i-iii Repair, Rehabilitation, and Restoration of Impacted Resources

Watercourses, Floodway and Riparian Areas

No watercourses, floodways or forested riparian areas will be impacted at Compressor Station 607.

Wetlands

Construction of the Project will result in temporary impacts to 4 wetlands. To minimize adverse impacts at wetland crossings, Transco will implement its Procedures during the construction, post-construction restoration, and operation of the Project. Transco developed the Procedures to address temporary wetland effects associated with construction of the Project. The Procedures are intended to satisfy the wetland restoration requirements of applicable resource protection agencies with jurisdiction over areas affected by the Project.

Operation of construction equipment through wetlands will be limited to only that necessary for each stage of construction (e.g., clearing, staging). Transco will minimize compaction of topsoil within unsaturated wetlands by utilizing timber mats or stripping, segregating, and stockpiling topsoil separately from subsoil during construction. Topsoil segregation techniques will be used in unsaturated wetlands to preserve the seed bank and to facilitate successful restoration. Construction workspaces have been minimized to the extent practicable within these resources. Construction equipment will use timber mats to prevent soil rutting for construction access through the wetlands.

Upon completion of construction within wetlands, Transco will promptly restore wetlands to their original configurations and contours and stabilize disturbed adjacent upland areas. Wetland areas will be revegetated with Ernst FACW Meadow Mix (ERNMX-122), or an alternative wetland seed mix that contains similar species, where standing water is not present, to stabilize

disturbed soils. PEM wetlands, dominated primarily by low-growing sedges, rushes, and other herbaceous vegetation, will revert to emergent vegetation following construction, resulting in no permanent change to wetland type. Following construction, Transco will monitor disturbed wetlands and adjacent uplands until restoration and long-term stabilization is documented.

S4.B.2 Proposed Preservation and Maintenance Operations to Reduce or Eliminate Project Impacts

During operation and maintenance, the following actions will be taken to reduce or limit impacts:

- Transco will not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

S4.C Compensatory Mitigation

Impacts to wetlands associated with the construction of Compressor Station 607 are temporary impacts and will not require compensatory mitigation.

S4.D Post-Construction Wetland and Watercourse Monitoring Plan

Post-Construction Wetland Monitoring shall occur annually for a period of 5 years following construction and include wetlands impacted by the Project, and a monitoring report submitted thereafter. Each monitoring report will include, at a minimum, the following information:

- Information describing the presence or absence of hydrology at the time of inspection and a narrative comparison to hydrology present in the wetland during pre-permitting field investigation(s);
- Photographic Documentation;
- Vegetation data; and
 - Inventory of plant species
 - Percent coverage of native hydrophytic species (wetlands)
 - Invasive species documentation and management (outlined in Appendix S4-2)
- Identification of any problems or concerns that require remedial measures, including loss of hydrology, and a plan to address the deficiencies.

References

Cowardin LM, Carter V, Golet FC, LaRoe ET. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish & Wildlife Service Pub. FWS/OBS-79/31, Washington, DC.

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APPENDIX S4-1
TRANSCO PROCEDURES



Transcontinental Gas Pipe Line Company, LLC

Appendix S4 – 1

**Transco Project-Specific Wetland and Waterbody Construction
and Mitigation Procedures**

Leidy South Project

July 2019

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I. APPLICABILITY

- A. The intent of these Procedures is to identify baseline mitigation measures for minimizing the extent and duration of the Transcontinental Gas Pipe Line Company, LLC (Transco) Leidy South Project (Project) related disturbance on wetlands and waterbodies. Transco will specify in its applications for a new FERC authorization, and in prior notice and advance notice filings, any individual measures in these Procedures it considers unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Transco will also explain how those alternative measures will achieve a comparable level of mitigation. Deviations from the FERC Procedures proposed by Transco to reflect site-specific conditions are **bolded** in the text.

Once the Project is authorized, Transco may request further changes as variances to the measures in the Transco Procedures. The Director of the Office of Energy Projects (Director) will consider approval of variances upon Transco's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;
2. is necessary because a portion of these Procedures is infeasible or unworkable based on Project-specific conditions; or
3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Project-related impacts on non-wetland areas are addressed in the Transco Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (Transco Plan).

B. Definitions

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:
 - a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing;
 - b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing; and
 - c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of crossing.
2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current federal methodology for identifying and delineating wetlands.

II. PRECONSTRUCTION FILING

- A. The following information will be filed with the Secretary of the FERC (Secretary) prior to the beginning of construction, for the review and written approval by the Director:
1. site-specific justifications for additional temporary workspace (ATWS) areas that would be closer than 50 feet from a waterbody or wetland; and
 2. site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands.
- B. The following information will be filed with the Secretary prior to the beginning of construction:
1. Spill Prevention and Response Procedures specified in Section IV.A;
 2. a schedule identifying when trenching or blasting will occur within each waterbody greater than 10 feet wide, within any designated coldwater fishery, and within any waterbody identified as habitat for federally-listed threatened or endangered species. Transco will revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice;
 3. plans for horizontal directional drills (HDD) under wetlands or waterbodies, specified in Section V.B.6.d;
 4. site-specific plans for major waterbody crossings, described in Section V.B.9;
 5. a wetland delineation report as described in Section VI.A.1, and
 6. the hydrostatic testing information specified in Section VII.B.3.

III. ENVIRONMENTAL INSPECTORS

- A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the Project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.
- B. The Environmental Inspector's responsibilities are outlined in the Transco Plan.

IV. PRECONSTRUCTION PLANNING

- A. Transco will develop project-specific Spill Prevention and Response Procedures that meet applicable requirements of state and federal agencies. A copy will be filed with the Secretary prior to construction and made available in the field on each construction spread. Refer to the Transco Project-specific Spill Plan for Oil and Hazardous Materials.

1. Transco and its contractors will structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. Transco and its contractors must, at a minimum, ensure that:
 - a. all employees handling fuels and other hazardous materials are properly trained;
 - b. all equipment is in good operating order and inspected on a regular basis;
 - c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;
 - d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary;
 - e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas;
 - f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;
 - g. pumps operating within 100 feet of a waterbody or wetland boundary utilize appropriate secondary containment systems to prevent spills; and
 - h. bulk storage of hazardous materials, including chemicals, fuels, and lubricating oils have appropriate secondary containment systems to prevent spills.
2. Transco and its contractors will structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, Transco and its contractors will:
 - a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills and unanticipated discoveries of contamination;

- b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;
- c. know the contact names and telephone numbers for all local, state, and federal agencies (including, if necessary, the U.S. Coast Guard and the National Response Center) that must be notified of a spill; and
- d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. AGENCY COORDINATION

Transco will coordinate with the appropriate local, state, and federal agencies as outlined in these Procedures and in the FERC's Orders.

V. WATERBODY CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply to the U.S. Army Corps of Engineers (USACE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.
2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody, or as otherwise specified by that authority.
3. Apply for state-issued waterbody crossing permits and obtain individual or generic Section 401 water quality certification or waiver.
4. Notify appropriate federal and state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in applicable permits.

B. INSTALLATION

1. Time Window for Construction

As permitted by state agencies, instream work, except that required to install or remove equipment bridges, will occur during the following time windows:

- a. **PA Trout Stocked Waters – June 16 through February 28;**
- b. **PA Wild Trout Waters – January 1 through September 30; and**
- c. **PA Class A Wild Trout Waters – April 2 through September 30.**

Transco may request at specific identified locations to perform in-stream work outside of specific state agency windows at individual waterbodies, as approved by state agencies prior to construction.

2. Extra Work Areas

- a. Locate all extra work areas (such as staging areas) and ATWS areas (such as spoil storage areas and full right-of-way topsoil) at least 50 feet away from water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.

In select areas, Transco will need to locate ATWS within 50 feet of a stream in areas that are not active agricultural land due to adjacent land use or topographic limitations. Transco has filed with the Secretary for review and written approval by the Director, site-specific justification for each ATWS area with a less than 50-foot setback from the water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. Refer to Resource Report 2, Appendix 2C of the Transco application. The justifications specify the conditions that will not permit a 50-foot setback and measures to ensure the waterbody is adequately protected.

- b. Limit the size of ATWS areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

- a. Comply with the USACE, or its delegated agency, permit terms and conditions.
- b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.
- c. Where pipelines parallel a waterbody, maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way, except where maintaining this offset will result in greater environmental impact.
- d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.
- e. Maintain adequate waterbody flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.
- f. Waterbody buffers (e.g., extra work area setbacks, refueling restrictions) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

- e. Remove temporary equipment bridges as soon as practicable after permanent seeding.
 - f. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove temporary equipment bridges as soon as practicable after final cleanup.
 - g. Obtain any necessary approval from the USACE, or the appropriate state agency for permanent bridges.
6. Dry-Ditch Crossing Methods
- a. Unless approved otherwise by the appropriate federal or state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries, or federally- designated as critical habitat.
 - b. Dam and Pump
 - (1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.
 - (2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:
 - (i) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;
 - (ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
 - (iii) screen pump intakes to minimize entrainment of fish;
 - (iv) prevent streambed scour at pump discharge; and
 - (v) continuously monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.
 - c. Flume Crossing

The flume crossing method requires implementation of the following steps:

 - (1) install flume pipe after blasting (if necessary), but before any trenching;
 - (2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow

through the flume pipe (some modifications to the stream bottom may be required to achieve an effective seal);

- (3) properly align flume pipe(s) to prevent bank erosion and streambed scour;
- (4) do not remove flume pipe during trenching, pipe laying, or backfilling activities, or initial streambed restoration efforts.; and
- (5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill

For each waterbody or wetland that would be crossed using the HDD method, Transco will file with the Secretary for the review and written approval by the Director, a plan that includes:

- (1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;
- (2) justification that disturbed areas are limited to the minimum needed to construct the crossing;
- (3) identification of any aboveground disturbance or clearing between the HDD entry and exit workspaces during construction;
- (4) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and
- (5) a contingency plan for crossing the waterbody or wetland in the event the HDD is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

- a. except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours.
- b. streambanks and unconsolidated streambeds may require additional restoration after this period;
- c. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

- d. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification or protected status (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in Section V.B.5.

8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, Transco will cross intermediate waterbodies using the open-cut crossing method, with the following restrictions:

- a. complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;
- b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and
- c. all other construction equipment must cross on an equipment bridge as specified in Section V.B.5.

9. Crossings of Major Waterbodies

Before construction, Transco will file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing. This plan will be developed in consultation with the appropriate state and federal agencies and shall include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in Section IV.F.3.a of the Transco Plan) immediately after initial disturbance of the waterbody or adjacent upland.

Sediment barriers will be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Transco Plan; however, Transco will implement the following specific measures at stream crossings:

- a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or drivable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-

installed after construction has stopped for the day and/or when heavy precipitation is imminent;

- b. where waterbodies are adjacent to the construction right-of-way and the right-of-way slopes toward the waterbody, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the waterbody; and
- c. use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.
2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.
3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.
4. Install erosion control fabric or a functional equivalent on waterbody banks at the time of final bank re-contouring. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.
5. Application of riprap for bank stabilization must comply with USACE, or its delegated agency, permit terms and conditions.
6. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.
7. Revegetate disturbed riparian areas with native species of conservation grasses, legumes, and woody species, similar in density to adjacent undisturbed lands.
8. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the

waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in the Plan

In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

9. Sections V.C.3 through V.C.7 above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees that are located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent right-of-way. Do not conduct any routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points.
2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.
3. Time of year restrictions specified in Section VII.A.5 of the Transco Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.

VI. WETLAND CROSSINGS

A. GENERAL

1. Transco will conduct wetland delineations using the current federal methodology and will file wetland delineation reports with the Secretary before construction.

This report will identify:

- a. by milepost all wetlands that would be affected;
- b. the National Wetlands Inventory (NWI) classification for each wetland;
- c. the crossing length of each wetland in feet; and
- d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a

wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

3. Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process Transco will identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength.
4. Wetland boundaries and buffers will be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.
5. Implement the measures of Sections V and VI in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of Sections V and VI cannot be met, Transco will file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan will address at a minimum:
 - a. spoil control;
 - b. equipment bridges;
 - c. restoration of waterbody banks and wetland hydrology;
 - d. timing of the waterbody crossing;
 - e. method of crossing; and
 - f. size and location of all extra work areas.
6. Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

B. INSTALLATION

1. Extra Work Areas and Access Roads
 - a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land.
 - b. Transco will file with the Secretary for review and written approval by the

Director, site-specific justification for each extra work area and ATWS with a less than 50-foot setback from wetland boundaries, except where adjacent upland consists of cultivated or rotated cropland or other disturbed land. The justification will specify the site-specific conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.

In select areas, Transco will need to locate ATWS within 50 feet of a wetland in areas that are not active agricultural land due to adjacent land use or topographic limitations. Transco has filed with the Secretary for review and written approval by the Director, site-specific justification for additional workspace within 50 feet of wetlands. Refer to Resource Report 2, Appendix 2D of the Transco application. The justifications specify the conditions that will not permit a 50-foot setback and measures to ensure the wetland is adequately protected.

- c. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).
- d. In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.
- e. The only access roads, other than the construction right-of-way, that can be used in wetlands are those existing roads that can be used with no modifications or improvements, other than routine repair, and no impact on the wetland.

2. Crossing Procedures

- a. Comply with USACE, or its delegated agency, permit terms and conditions.
- b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.
- c. Use “push-pull” or “float” techniques to place the pipe in the trench where water and other site conditions allow.
- d. Minimize the length of time that topsoil is segregated and the trench is open. Do not trench the wetland until the pipeline is assembled and ready for lowering in.

- e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.
- f. Cut vegetation just above ground level, leaving existing root systems in place, and remove it from the wetland for disposal.
- g. Transco may burn woody debris in wetlands, if approved by the USACE and in accordance with state and local regulations, ensuring that all remaining woody debris is removed for disposal.
- h. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.
- i. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated. Immediately after backfilling is complete, restore the segregated topsoil to its original location.
- j. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.
- k. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.
- l. Remove all Project-related material used to support equipment on the construction right-of-way upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in Section IV.F.3.a of the Transco Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in Section VI.B.3.c, maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

- a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland.
- b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the

edge of the construction right-of-way as necessary to contain spoil within the construction right-of-way and prevent sediment flow into the wetland.

- c. Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in silt-laden water flowing into any wetland. Remove the dewatering structures as soon as practicable after the completion of dewatering activities.

C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers at the wetland boundaries and/or seal the trench bottom as necessary to maintain the original wetland hydrology.
2. Restore pre-construction wetland contours to maintain the original wetland hydrology.
3. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Project Specific Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.
4. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate federal or state agency.
5. Transco will consult with the appropriate federal or state agencies to develop a Project-specific wetland restoration plan. The restoration plan will include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of invasive species and noxious weeds (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Refer to the Project-specific Noxious and Invasive Plant Management Plan.
6. Until a Project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).
7. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.

8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after revegetation and stabilization of adjacent upland areas are judged to be successful as specified in Section VII.A.4 of the Transco Plan.

D. POST-CONSTRUCTION MAINTENANCE AND REPORTING

1. Do not conduct routine vegetation mowing or clearing over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees within 15 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. Do not conduct any routine vegetation mowing or clearing in wetlands that are between HDD entry and exit points.
2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate federal or state agency.
3. Time of year restrictions specified in Section VII.A.5 of the Transco Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of wetland areas.
4. Monitor and record the success of wetland revegetation annually until wetland revegetation is successful.
5. Wetland revegetation shall be considered successful if all of the following criteria are satisfied:
 - a. the affected wetland satisfies the current federal definition for a wetland (i.e., soils, hydrology, and vegetation);
 - b. vegetation is at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction;
 - c. if natural rather than active revegetation was used, the plant species composition is consistent with early successional wetland plant communities in the affected ecoregion; and
 - d. invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction.
6. Within 3 years after construction, Transco will file a report with the Secretary identifying the status of the wetland revegetation efforts and documenting success as defined in Section VI.D.5, above.

For any wetland where revegetation is not successful at the end of 3 years after construction, Transco will develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate wetlands. Continue revegetation efforts and file a report annually documenting progress in these wetlands until wetland revegetation is

successful.

VII. HYDROSTATIC TESTING

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state or inter-state issued water withdrawal permits or file Notices of Intent to rely upon General Permits, as required.
2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, or file Notices of Intent to rely upon General Permits, as required, as required.
3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.
2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, address secondary containment and the refueling of these pumps in the project-specific Spill Prevention and Response Procedures. Refer to the Transco Project-specific Spill Plan for Oil and Hazardous Materials.
3. Transco will file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to minimize the potential for entrainment of fish.
2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and/or local permitting agencies grant written permission.
3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.
4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.

2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written permission

APPENDIX S4-2
INVASIVE SPECIES MANAGEMENT PLAN



TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

INVASIVE SPECIES MANAGEMENT PLAN

LEIDY SOUTH PROJECT

JULY 2020

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LIST OF ACRONYMS AND ABBREVIATIONS

ALB	Asian long-horned beetle
BMP	best management practice
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
EI	environmental inspector
FERC	Federal Energy Regulatory Commission
GPS	global positioning system
PA DCNR	Pennsylvania Department of Conservation and Natural Resources
PISC	Pennsylvania Invasive Species Council
Plan	Invasive Species Management Plan
Project	Leidy South Project
ROW	right-of-way
TCD	thousand cankers disease
Transco	Transcontinental Gas Pipe Line Company, LLC
Transco Plan	Project-specific Upland Erosion Control, Revegetation, and Maintenance Plan
Transco Procedures	Project-specific Wetland and Waterbody Construction and Mitigation Procedures
USDA	United States Department of Agriculture

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1 INTRODUCTION

Transcontinental Gas Pipe Line Company, LLC (Transco) has prepared this Invasive Species Management Plan (Plan) for the Leidy South Project (Project) to minimize the spread of noxious and invasive plant species within the rights-of-way (ROWs), additional temporary workspaces, and at aboveground facilities located in Pennsylvania. This Plan also addresses post-construction restoration and noxious and invasive species monitoring, as required by state and federal regulatory agencies.

1.1 OVERVIEW OF NOXIOUS WEED, INVASIVE PLANT SPECIES, AND FOREST DISEASE

Federal Invasive Species Executive Order 13112 defines an invasive plant as “an alien species whose introduction causes, or is likely to cause, economic or environmental harm or harm to human health” (3 Code of Federal Regulations [CFR] 6183 [1999]). Noxious weeds are typically a subset of invasive plants that are designated by a federal, state, or county government as injurious to public health, recreation, or natural and economic resources such as agriculture, surface waters, wildlife, or property (Sheley et al. 1999; Pennsylvania Invasive Species Council 2009). For the purposes of this Plan, the term “invasive plant” is used to encompass noxious weeds and non-noxious invasive plants. The term “noxious weed” is used when referring to those plants specifically defined and regulated as noxious under federal or state law.

Invasive plants can reduce native plant diversity by competing for resources, including light, water, and minerals (Swearingen et al. 2010). They may alter soil conditions by secreting chemicals that inhibit seed germination or growth of other plants and may disrupt nutrient cycling and soil characteristics in invaded areas by changing the amount, composition, or rate of decay of leaf litter. Additionally, invasive plants that are closely related to native species may hybridize with their native relatives, reducing genetic diversity and altering certain native genotypes. Invasive species can also cause changes in native habitat structure and food availability, which can affect other organisms and their behaviors, including the breeding success of bird species and continued persistence of native plants that serve as food sources (Sarver et al. 2008). Thus, invasive plant communities are generally limited in diversity and tend to have lower habitat value than native vegetation communities (Swearingen et al. 2010). Some invasive species recruit rapidly and, if not adequately controlled, can quickly dominate a landscape. Disturbed areas, such as pipeline and other utility ROWs that have been cleared for construction, are susceptible to invasion as they provide optimum conditions for the

translocation of invasive seeds and propagules (Pennsylvania Department of Conservation and Natural Resources [PA DCNR] 2011).

Many forest diseases affecting the native tree species found throughout the Project are caused or spread by invasive insect species. Forest disease can be spread along the ROW or even off-site by moving the insect or pathogen (i.e., fungi spores). Insect larva can also be spread when they are present within infected woody material. The movement of firewood is a significant vector for transmission of forest disease. As such, Pennsylvania has regulations preventing the movement of firewood and other woody materials, primarily in the form of quarantines.

1.2 PURPOSE AND OBJECTIVES

The purpose of this Plan is to prescribe methods to prevent, mitigate, and control the spread of invasive species and forest disease spread during construction and operation of the Project. The specific objectives of this Plan are to: (1) provide guidance and measures to control invasive plant species within disturbed areas to the extent that the habitat functions of wetlands and uplands are not compromised; (2) reduce the dominance of invasive plants during the first three years following construction and over long-term operations; and (3) prevent the spread of forest disease. This Plan outlines best management practices (BMPs) to control the spread of invasive plants and forest disease, specifically by preventing transport of propagules from infested work areas to non-infested work areas during construction.

Transco will ensure that all contractors comply with the methods outlined herein during construction, restoration, and operation of the Project. Contractors will be trained on the requirements of this Plan during mandatory preconstruction environmental training.

1.3 Applicable Invasive Plant Laws and Target Species for Surveys

Executive Order 13112 established the National Invasive Species Council, which maintains a list of noxious weeds under the Noxious Weeds Regulations, Section 360.200, of the CFR. In addition, Pennsylvania possess state-specific lists of noxious weeds (Appendix A). Pennsylvania state invasive plant regulations are summarized in the following subsections.

1.3.1 Pennsylvania Noxious Weeds

The Pennsylvania Department of Agriculture is responsible for maintaining the state's noxious weed list under the Noxious Weed Control Law (Pennsylvania Code, Title 7, Chapter 110). Table A-1 in Appendix A includes the state noxious weed list.

1.3.2 Pennsylvania Invasive Plants

Under Executive Order 2017-07, the Governor's Invasive Species Council of Pennsylvania (PISC) developed a state invasive species management plan (Pennsylvania Invasive Species Council 2009). Pennsylvania maintains a database of invasive species, including those that are not part of the noxious weed control list; however, these species are not subject to state regulation (PA DCNR n.d.). Table A-2 in Appendix A includes the PA DCNR database of invasive species.

1.4 APPLICABLE QUARANTINE REGULATIONS IN PENNSYLVANIA

The majority of forest clearing will be performed within four counties in Pennsylvania (Clinton, Lycoming, Luzerne and Schuylkill counties) which may host several invasive insect pests that feed on native trees. Numerous agencies and organizations, such as the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), PA DCNR, and Pennsylvania Invasive Species Council, have identified these species as significant threats to the state's timber industry and native forests. These agencies have enacted programs to regulate, monitor, and control these pests. Eight of these invasive insect species and/or diseases are known to occur in the Pennsylvania counties crossed by the Project, as described below.

Emerald Ash Borer

The emerald ash borer (*Agilus planipennis*) is known to occur in every Pennsylvania county (PA DCNR 2017). This small, metallic green beetle native to southeast Asia feeds exclusively on ash trees (*Fraxinus* spp.). Since its first detection in Michigan in 2002, it has spread quickly throughout the northeastern United States and southern Canada. Infestations cause crown dieback, irregular branching, and bark and tissue damage (PA DCNR n.d.[b]).

The USDA currently imposes a federal quarantine to limit the movement of potentially infected ash wood into or out of contiguous quarantine areas, which include Pennsylvania and most of the northeastern and mid-Atlantic states (USDA 2019b). However, as the beetle has continued to spread throughout the United States, the USDA has responded by proposing to lift the quarantine so it may devote all available resources to managing the beetle (USDA 2019a). An internal state quarantine in Pennsylvania was lifted in 2011 following the beetle's spread throughout the state (Pa.B. 2011).

Gypsy Moth

Gypsy moths (*Lymantria dispa*) are known to occur in every Pennsylvania county crossed by the Project (PA DCNR n.d.[c]). Caterpillars feed mainly on oak trees but can infest numerous other tree species. Caterpillars feed heavily on the foliage, and although it may take more than one year of defoliation before trees die, conifers may be killed after a single season of defoliation (PA DCNR n.d.[c]).

Federal and Pennsylvania state regulations require that items potentially harboring gypsy moth life stages (e.g., nursery stock, vehicles, forest products, and outdoor household items) be carefully inspected prior to being moved from an infested area to an uninfested area (USDA 2017a). Quarantine boundaries encompass all or portions of all northeastern states from Virginia to Maine, plus West Virginia, Ohio, Indiana, Michigan, Wisconsin, and several counties in Illinois (USDA 2017).

Hemlock Woolly Adelgid

The hemlock woolly adelgid (*Adelges tsugae*; HWA) is a tiny insect related to aphids that feeds on eastern hemlock trees in northeastern states. This insect is known to occur in all Pennsylvania counties crossed by the Project (PA DCNR 2018). Newly hatched nymphs produce white, cottony material that surrounds their bodies, and the presence of these woolly masses at the base of hemlock needles is the main indicator of an infestation. The adelgids feed on a tree's stored starches and young twig tissue, weakening the tree (PA DCNR n.d.[d]). To prevent further spread of this pest, several states have enacted an external quarantine to prevent infected wood transport into the state (VFPR 2019). Pennsylvania does not employ a quarantine to control the HWA as it has spread throughout the state and instead relies on a combination of biological, insecticide, silvicultural and breeding controls to control the pest (PA DCNR n.d.[d]). At the time of this Plan, a federal quarantine has not been enacted (USDA 2019).

Sirex Woodwasp

The sirex woodwasp (*Sirex noctilio*) is known to occur in nine Pennsylvania counties including Luzerne and Lycoming which are crossed by the Project (CERIS 2019). This small wasp is native to Europe, Asia, and northern Africa, primarily feeds on pines, and has caused more than 80 percent mortality in North American pine plantations where it occurs. The woodwasp is most commonly transported through wooden shipping packaging (NYIS n.d.). To prevent further spread of this pest, some states have enacted an external quarantine to prevent

infected wood from transport into the state (NCDACS 2008). At this time, Pennsylvania has not enacted a quarantine or other specific control measure related to the insect. Additionally, a federal quarantine has not been enacted (USDA 2019).

Asian Long-horned Beetle

The Asian long-horned beetle (*Anoplophora glabripennis*; ALB) is a beetle native to China. The beetle is not known to occur anywhere in the Project area. The ALB was first recorded in New York in 1996 and has since been recorded in New Jersey, Massachusetts, Ohio, and Illinois. The larvae of the ALB feed on the inner branches of many hardwood species including maple, box elder, alder, elm, birch, poplar, and willow. The impacts of the larvae can result in the destruction of branches and eventually the entire tree (USDA 2016).

Due to the proximity to states with reported ALB, Pennsylvania is actively working to prevent the spread of the ALB into the state. Pennsylvania encourages tree owners to inspect their trees for presence of ALB (PA DCNR 2019). Pennsylvania also currently quarantines the import of any out-of-state firewood to prevent the spread of invasive pests and diseases (Pa.B. 2010). Federal quarantine restrictions are currently in place for areas of recorded ALB and are outlined in 7 CFR Section 301.51-3 (USDA 2019c).

Spotted Lanternfly

The spotted lanternfly (*Lycorma delicatula*; SLF) is a plant hopper native to China and invasive in the United States. The SLF was first detected in Berks County, PA in 2014 (PDA 2019a) and has since spread to several southeastern counties including Schuylkill within the Project area. The SLF favors the tree-of-heaven (*Ailanthus altissima*, an invasive species from Asia) as a food source; however, it will feed on a wide variety of plants ranging from crops to hardwood trees. The SLF sucks sap from plant stems and branches which weakens the plant and leaves behind a sugary residue called honeydew. The honeydew further damages the plant by attracting other insects and promoting the growth of sooty mold. The SLF is also a hitchhiking pest that will lay eggs on nearly any flat surface, a trait that allows the SLF to spread great distances when infested materials are transported (USDA 2018a).

The SLF is a relatively recent arrival in Pennsylvania and the state is currently focused on controlling the spread of the pest and eradicating identified populations (PDA 2019a). As such, an internal quarantine exists for 13 counties including Schuylkill county in the Project area (Pa.B. 2018 and PDA 2018). The state quarantine restricts the movement of the items listed

below, requiring precautions and control measures which are described in Section 3.2. There is currently no federal quarantine for the SLF (USDA 2019).

- Any living stage of the SLF
- Brush, bark and other yard waste
- Landscaping, remodeling or construction waste
- Any tree parts including firewood of any species
- Grapevines
- Nursery stock
- Crated materials
- Outdoor household articles

Oak Wilt

Oak wilt occurs in areas west of the Susquehanna River in Pennsylvania (Penn State College of Agricultural Sciences 2017) including Clinton County within the Project area. Oak wilt is a fungal disease that greatly impacts red oak (*Quercus rubra*) populations, as well as other various oak species (*Quercus* spp.). The fungus, *Ceratocystis fagacearum*, clogs the xylem of the tree preventing water movement. This causes the tree to “wilt,” impacting red oaks quickly, leading to rapid mortality. White oaks (*Quercus alba*) are impacted more variably, dying slowly, but can recover. Surviving white oaks can harbor the fungus and serve as a “symptomless reservoir” (USDA 1983). The disease can be spread through sap-feeding beetles and can be spread via root grafts from tree to tree. All known carriers of the disease have not been identified (Penn State College of Agricultural Sciences 2000).

Current management practice in Pennsylvania for positively diagnosed trees is to break root grafts to nearby trees via trenching or fumigating, then removing infected trees, and burying, burning, or debarking the logs and stumps.

Thousand Cankers Disease

Thousand cankers disease (TCD) is known to occur in southeastern Pennsylvania and has not been documented within any county crossed by the Project (PDA 2019). TCD is caused by the combined activity of the walnut twig beetle (*Pityophthorus juglandis*) and the fungus *Geosmithia morbida*. TCD infects walnut trees when the walnut twig beetle burrows into the bark of walnut trees (*Juglans* spp.), introducing the fungus. The fungus causes the formation of cankers under the bark of the walnut, which restrict the movement of nutrients

throughout the tree. More cankers form as more beetles attack the tree, eventually preventing efficient nutrient flow, killing the tree (PDA 2019).

Pennsylvania imposes an external quarantine restricting the import of walnut materials from TCD impacted states as well as an internal quarantine restricting the export of walnut materials from impacted counties. The internal quarantine covers Bucks, Chester, Delaware, Montgomery, Philadelphia, and Lancaster counties (PDA 2019 and Pa.B. 2011). There is currently no federal regulation in place for TCD; however, the USDA Animal and Plant Health Inspection Service (APHIS) does have regulations in place that address the known TCD pathways (United States. Forest Service et al. 2011).

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2 EXISTING CONDITIONS

According to the United States Forest Service, the Project lies within two distinct ecological provinces (Cleland et al. 2007). The northern portion of the Project is located in the Northeastern Mixed Forest Province, Northern Unglaciaded Allegheny Plateau Section. Forestland in this section is comprised of maple-beech-birch and oak-hickory communities (Cleland et al.; McNabb et al. 2007). The southern portion of the Project is located in the Northeastern Mixed Forest and the Central Appalachian Broadleaf Forest-Coniferous Forest-Meadow Province, Northern Ridge and Valley Section. Undeveloped land primarily consists of oak-hickory forest (Cleland et al. 2007; McNabb et al. 2007).

The Project crosses multiple land use types, from human-altered landscapes, including residential, agricultural, commercial, industrial, and transportation and utility corridors, to relatively undisturbed natural landscapes, including forested uplands, open land, forested wetlands, non-forested wetlands, and open water. Human-altered landscapes often create suitable conditions for establishment of fast-growing invasive species that thrive in nutrient-poor soil. As the Project area has been settled since Colonial times, even relatively undisturbed lands are likely to be long-fallow agricultural fields or second- or third-growth forest, increasing the likelihood that native vegetation has been altered and may host invasive species.

2.1 INVASIVE PLANT BASELINE INVENTORY SURVEYS

Transco completed invasive plant baseline surveys in 2018 and 2019 to determine the presence, location and extent of invasive plant species within the Project area. Transco completed an updated and comprehensive invasive plant species inventory of all Project workspaces in Pennsylvania. Surveys were completed within an approximately 450-foot-wide corridor centered on the proposed pipeline centerline. The survey area for access roads and aboveground facilities covered the proposed limits of disturbance. Biologists used Global Positioning System (GPS) units to inventory the location of each occurrence of invasive plant species within the survey corridor. Species lists are provided in Appendix A.

Field data collected was further classified into two categories: low-density populations (Tier I) and high-density populations (Tier II). Tier I areas were defined as those areas where the sum of all invasive plant species' percent cover within the given area totaled less than 50 percent. Tier II areas were defined as those areas where the sum of all invasive plant species' percent cover within the given polygon totaled greater than or equal to 50 percent.

Biologists manually conducted a desktop review of the data collected in the field. Locations documented in the field with numerous small individual populations of invasive plant species were consolidated to represent larger Tier I areas of invasive plant species. These consolidated areas were generated based on individual habitat features, such as contiguous fields, forest blocks, or hedgerows. All species documented within each individual population located within the consolidated area were combined into one species list for that area.

2.2 SURVEY RESULTS

2.2.1 Pennsylvania

The baseline invasive plant inventory field surveys conducted in 2018 and 2019 confirmed that non-native invasive plant species are present within the survey corridor along the proposed Project alignment in Pennsylvania. Summary results tables from the baseline surveys identify the milepost location and Tier status as defined above of species documented during the surveys (Appendix B).

3 INVASIVE SPECIES MANAGEMENT

3.1 MEASURES TO PREVENT THE INTRODUCTION AND SPREAD OF INVASIVE PLANT SPECIES DURING CONSTRUCTION

Transco will perform the following measures to prevent the introduction and spread of invasive plant species:

- Prior to construction, Transco will provide training to construction contractors and inspection staff on the implementation of this Plan. In addition, the contractors will be instructed to stay within approved access roads and designated workspace areas, which will reduce the likelihood that invasive plants will be transported into undisturbed locations.
- Sediment and erosion control measures will be installed, as required, to prevent spoil from migrating into sensitive habitats during construction. These measures will also help contain invasive plant propagules.
- Vehicles, equipment, and materials (including equipment mats) will be inspected for remnant soils, vegetation, and debris and cleaned of these materials before they are brought to the Project area, leave the construction ROW, or move to another location along the construction ROW that is free of invasive species populations.
- To prevent the spread of seeds, roots, or other viable plant materials, equipment used in areas containing invasive plant species will be cleaned to be visibly free of soil and vegetation debris. Cleaning procedures may consist of the following:
 - Equipment may be power-washed with clean water (no soaps or chemicals) before moving from an area populated with invasive species.
 - An elevated wash rack station may be installed and used for the washing of construction vehicles in sites only where both:
 - The construction equipment exits near a wetland or upland area identified in this ISMP as containing invasive species vegetation at high densities (as a preconstruction condition); and
 - The construction equipment is to enter an adjacent upland or another wetland, within the next 1,000 linear feet along the construction ROW that are free of invasive species.

- The proposed locations for equipment cleaning stations have been established, as depicted in the tables in Appendix B. These are based on locations where invasive species were identified during baseline biological field surveys. Placement and implementation of the wash rack stations shall be modified during construction if determined by the environmental inspector (EI) and chief inspector that site conditions are not conducive for this method of equipment cleaning. Wash water used for both cleaning methods will not be discharged within 100 feet of a waterbody, wetland, or storm water conveyance (e.g., ditch, catch basin).
- Where the use of water to wash invasive plant material from equipment is not feasible due to seasonal weather conditions (e.g., ambient temperatures at or below freezing), site constraints relative to slope, access, workspace configurations or the site's proximity to adjacent wetlands or waterbodies, an alternative method will be implemented. In these locations Transco is proposing the use of brushes and/or compressed air or power blowers to clean equipment of dirt, seeds, roots, or other viable plant materials, before moving from an area populated with invasive species.
- Soil and plant material collected at the cleaning stations shall be disposed of in the following manner:
 - Evenly spread in upland locations (in the immediate vicinity of the cleaning station) that has been documented on the Project mapping as populated with invasive species as a preconstruction condition;
 - Buried on-site within the pipeline trench (in the immediate vicinity of the cleaning station) if deemed appropriate by the EI and chief inspector; or
 - Collected and transported off-site to either a landfill-incinerator or a state-approved disposal facility.
- If upland invasive species must be cut within the Project area during construction, the slash will be used within the same construction area that is infested, provided that no filling of any wetlands or adjacent areas will occur.
- The contractor and EIs will be responsible for ensuring that any imported fill materials and straw bales used for erosion control or restoration are certified weed-free.

- Following pipeline installation, the trench will be graded to preconstruction contours or as otherwise specified in approved erosion and sediment control plans. The area will then be reseeded with a weed-free seed mix, chosen in coordination with applicable federal and state agencies, to facilitate the growth of native species and minimize the establishment of invasive species.

3.2 MEASURES TO CONTROL SPREAD OF INVASIVE INSECTS AND FOREST DISEASE

Transco will perform the following measures to prevent the spread of invasive insects and forest disease:

- Prior to construction, Transco will provide training to construction contractors and inspection staff on the recognition of signs of invasive insect and/or forest disease. This training will include details of the Spotted Lanternfly Permit Training for Businesses course which is required in Schuylkill County and discussed in more detail below. Training for SLF will also outline responsible parties that will be required to complete training and inspections.
- Contractors will notify EIs of any locations suspected of being infested with invasive insect species or forest disease.
- Any invasive insect or forest disease area identified during construction will immediately have additional air or wash stations added beyond the outermost extent of the infestation and equipment will be cleaned using the cleaning procedures listed in Section 3.1.
- All woody vegetation removed in areas identified as having invasive insects and/or forest disease will be ground and disposed of in the same manner as soil and plant material collected at the cleaning stations (see Section 3.1).
- In Schuylkill County, Pennsylvania, to ensure compliance with the SLF quarantine area, the contractor will complete the Spotted Lanternfly Permit Training for Businesses online course provided by the Penn State Extension and obtain required SLF Permits for all vehicles and equipment that will conduct work within the SLF quarantine area (Pennsylvania State Extension n.d.). Only a single, supervisory level employee is required to complete the training program. This individual is then responsible for identifying and training all other workers that require SLF quarantine training .

3.3 POST-CONSTRUCTION MONITORING AND MANAGEMENT ACTIVITIES

Invasive plant monitoring will occur concurrently with upland and wetland restoration monitoring, as outlined in the Transco Plan and the Transco Procedures. Specifically, Transco will conduct follow-up inspections of disturbed areas after the first and second growing seasons (normally during months 3 to 9 and months 15 to 21 after seeding, respectively) to determine the success of revegetation in upland, agricultural, and residential areas. Monitoring in wetland areas will be completed annually for the first three years after construction or until wetland revegetation is successful. Additional monitoring (i.e., beyond three years) may be required as needed or according to the FERC Certificate, United States Army Corps of Engineers permit, and/or other state and federal regulatory authorizations.

The following data will be collected during monitoring: invasive plant or insect species or diseased tree and location; extent of infestation or infection; results of previous control measures implemented, if any; and recommendations for further monitoring or control, if needed. The results of invasive plant and insect species and diseased tree monitoring will be used to direct adaptive management of these species and diseases. Subsequent herbicide applications and other invasive plant or insect species or forest disease management methods will continue in accordance with the Transco Plan and Transco Procedures.

For general invasive plant management and treatment measures, Transco plans to use a foliar herbicide method to control invasive plant species populations along the proposed ROW that exceed documented pre-construction levels. Herbicides will be applied according to manufacturers' printed recommendations and in accordance with applicable agency regulations governing herbicide application. A qualified contractor will be consulted to determine the appropriate method for the application of the approved herbicides and may suggest methods other than foliar herbicide application.

In consultation with a state-certified applicator, the Pennsylvania Invasive Species Council, and applicable regulating agency, Transco will identify the most effective herbicide to use for each species and may modify methods to suit site conditions and results of previous control measures. Herbicides will be reapplied as needed, based on monitoring results. However, if herbicides are not approved by FERC and the USACE, then mechanical methods will be used in lieu of herbicide applications. The following herbicides are under consideration for use:

- Glyphosate – applied to foliage for control of invasive herbaceous (including grasses) and woody plants; also used as a treatment on cut stumps to prevent

re-sprouting. Because this herbicide is non-selective, selective application methods and seasonal timing will be used to prevent impacts on non-target species.

- Triclopyr – applied to foliage for control of invasive, broadleaf herbaceous, and woody plants; also used as a treatment on cut stumps to prevent re-sprouting or as a basal bark application to kill woody plants.
- Clopyralid – applied to foliage for selective control of herbaceous and woody plants belonging to certain taxonomic groups.

Herbicides will be stored, transported, handled, applied, and disposed of according to applicable federal and state regulations. Regulated herbicides will be supervised and applied by an applicator possessing a current license or certification. Herbicides will not be used during weather conditions that would exacerbate impacts on non-target species (e.g., high wind, precipitation, snow, and ice). Herbicides will be mixed off site and greater than 200 feet from open water, wetlands, or sensitive habitats. In accordance with the Project-specific Wetland and Waterbody Construction and Mitigation Procedures (Transco Procedures), herbicides will not be used within 100 feet of a wetland or waterbody except as allowed by the appropriate land management or State or Federal agency. All herbicide applications will be performed in accordance with product-specific instructions. Spill kits will be available during application, and spills will be cleaned up immediately according to the Transco Spill Plan for Oil and Hazardous Materials. All herbicide contractors will possess copies of Safety Data Sheets for each herbicide used.

If herbicide use is prohibited or restricted, mechanical (e.g., mowing) or manual methods (e.g., hand-pulling) may be warranted. Invasive plants with long tap roots may be extracted with a weed wrench, narrow spade, or other effective tool. Shallowly rooted specimens may be pulled by hand or removed with appropriate hand tools. Native vegetation will be left intact to the extent feasible during manual removal of invasive plants. Specific control methods may be identified in consultation with the appropriate federal or state agencies during development of the Project-specific wetland restoration plan.

On certified organic agricultural land, Transco will, to the extent feasible, implement invasive species control methods consistent with the landowner's or tenant's Organic System Plan. Prohibited substances will not be used in invasive species control on certified organic agricultural land. In addition, Transco will not use prohibited substances to promote invasive

species control on land adjacent to certified organic agricultural land in a manner that would potentially compromise the certified organic agricultural land.

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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

**INVASIVE PLANT MANAGEMENT PLAN
Appendix A Pennsylvania Target Invasive Plant Lists**

LEIDY SOUTH PROJECT

JULY 2020

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**Table A-1
Pennsylvania Noxious Weeds**

Common Name	Scientific Name	USDA Symbol
Class A Noxious Weeds		
Giant hogweed	<i>Heracleum mantegazzianum</i>	HEMA17
Goatsrue	<i>Galega officinalis</i>	GAOF
Kudzu-vine	<i>Pueraria lobata</i>	PUMOL
Palmer amaranth	<i>Amaranthus palmeri</i>	AMPA
Waterhemp	<i>Amaranthus rudis</i>	AMTU
Tall waterhemp	<i>Amaranthus tuberculatus</i>	AMTU
Animated oat	<i>Avena sterilis</i>	AVST
Dodder	<i>Cuscuta</i> spp. (Except for native species)	CUSCU
Hydrilla	<i>Hydrilla verticillata</i>	HYVE3
Broomrape	<i>Orobanche</i> spp. (Except for native species)	OROBA
Wavyleaf basketgrass	<i>Opismenus hirtellus</i>	OPHI
Class B Noxious Weeds		
Bull thistle or Spear thistle	<i>Cirsium arvense</i>	CIAR4
Canada Thistle	<i>Cirsium arvense</i>	CIAR4
Musk Thistle or Nodding Thistle	<i>Carduus nutans</i>	CANU4
Johnson Grass	<i>Sorghum halepense</i>	SOHA
Mile-a-Minute	<i>Persicaria perfoliata</i>	POPE10
Multiflora Rose	<i>Rosa multiflora</i>	ROMU
Purple Loosestrife	<i>Lythrum salicaria</i>	LYSA2
Shattercane	<i>Sorghum bicolor</i>	SOBID
Poison hemlock	<i>Conium maculatum</i>	COMA2
Class C Noxious Weeds		
Class C noxious weeds are any Federal noxious weeds listed on the Federal Noxious Weed List that are not yet established in the Commonwealth and are not referenced above.		
Sources: Pennsylvania Department of Agriculture. n.d. "Noxious, Invasive and Poisonous Plant Program". https://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/NIPPP/Pages/default.aspx Available at: Accessed on June 13, 2019		

**Table A-2
DCNR Invasive Plant List**

Common Name	Scientific Name	USDA Symbol
Amur maple	<i>Acer ginnala</i>	ACGI
Japanese Maple	<i>Acer palmatum</i>	ACPA2
Norway maple	<i>Acer platanoides</i>	ACPL
Goutweed	<i>Aegopodium podagraria</i>	AEPO
Tree-of-heaven	<i>Ailanthus altissima</i>	AIAL
Chocolate vine	<i>Akebia quinata</i>	AKQU
Mimosa	<i>Albizia julibrissin</i>	ALIU
Garlic mustard	<i>Alliaria petiolata</i>	ALEP4
European black alder	<i>Alnus glutinosa</i>	ALGL2
Porcelain berry	<i>Ampelopsis glandulosa</i>	AMBR7
Wild chervil	<i>Anthriscus sylvestris</i>	ANSY
Japanese angelica tree	<i>Aralia elata</i>	AREL8
Mugwort	<i>Artemisia vulgaris</i>	ARDO3
Small carpetgrass	<i>Arthraxon hispidus</i>	ARHI3
Giant Reed	<i>Arundo donax</i>	ARDO4
Japanese barberry	<i>Berberis thunbergii</i>	BETH
European barberry	<i>Berberis vulgaris</i>	BEVU
Poverty brome	<i>Bromus sterilis</i>	BRST2
Cheatgrass	<i>Bromus tectorum</i>	BRTE
Paper mulberry	<i>Broussonetia papyrifera</i>	BRPA4
Butterfly bush	<i>Buddleja davidii</i>	BUDA2
Flowering Rush	<i>Butomus umbellatus</i>	BUUM
Carolina fanwort	<i>Cabomba caroliniana</i>	CACA
Narrowleaf bittercress	<i>Cardamine impatiens</i>	CAIM
Spiny Plumeless Thistle	<i>Carduus acanthoides</i>	CAAC
Oriental bittersweet	<i>Celastrus orbiculatus</i>	CEOR7
Brown knapweed	<i>Centaurea jacea</i>	CEJA
Black knapweed	<i>Centaurea nigra</i>	CENI2
Spotted knapweed	<i>Centaurea stoebe</i>	CEST8
Greater celandine	<i>Chelidonium majus</i>	CHMA2
Japanese Clematis	<i>Clematis terniflora</i>	CLTE4
Poison hemlock	<i>Conium maculatum</i>	COMA2
Jimsonweed	<i>Datura stramonium</i>	DAST
Chinese Yam	<i>Dioscorea polystachya</i>	DIOP
Brazilian water-weed	<i>Egeria densa</i>	EDGE
Russian olive	<i>Elaeagnus angustifolia</i>	ELAN
Autumn olive	<i>Elaeagnus umbellata</i>	ELUM

**Table A-2
DCNR Invasive Plant List**

Common Name	Scientific Name	USDA Symbol
Hairy willow herb	<i>Epilobium hirsutum</i>	EPHI
Smallflower hairy willow-herb	<i>Epilobium parviflorum</i>	EPPA5
Winged Euonymus	<i>Euonymus alatus</i>	EUAL13
Wintercreeper	<i>Euonymus fortunei</i>	EUFO5
Japanese knotweed	<i>Fallopia japonica</i>	FAJA2
Giant Knotweed	<i>Fallopia sachalinensis</i>	POSA4
Hybrid Knotweed	<i>Fallopia X bohemica</i>	POSA23
Lesser celandine	<i>Ficaria verna</i>	RAFI
Glossy buckthorn	<i>Frangula alnus</i>	RHFR
English ivy	<i>Hedera helix</i>	HEHE
Orange day-lily	<i> Hemerocallis fulva</i>	HEFU
Dames rocket	<i>Hesperis matronalis</i>	HEMA3
Velvetgrass	<i>Holcus lanatus</i>	HOLA
Japanese hops	<i>Humulus japonicus</i>	HUJA
Hydrilla	<i>Hydrilla verticillata</i>	HYVE3
Common Frogbit	<i>Hydrocharis morsus-ranae</i>	HYMO6
Cogon Grass	<i>Imperata cylindrica</i>	IMCY
Yellow flag iris	<i>Iris pseudacorus</i>	IRPS
Golden Rain-Tree	<i>Koelreuteria paniculata</i>	KOPA
Shrubby bushclover	<i>Lespedeza bicolor</i>	LEBI2
Chinese bushclover	<i>Lespedeza cuneata</i>	LECU
Japanese privet	<i>Ligustrum japonicum</i>	LIJA
Border privet	<i>Ligustrum obtusifolium</i>	LIOB
Chinese privet	<i>Ligustrum sinense</i>	LISI
Common privet	<i>Ligustrum vulgare</i>	LIVU
Japanese honeysuckle	<i>Lonicera japonica</i>	LOJA
Amur honeysuckle	<i>Lonicera maackii</i>	LOMA6
Morrow's honeysuckle	<i>Lonicera morrowii</i>	LOMO2
Beautiful honeysuckle	<i>Lonicera morrowii x bella</i>	LOBE
Sweet Breath Honeysuckle	<i>Lonicera fragrantissima</i>	LOFR
Standish honeysuckle	<i>Lonicera standishii</i>	LOST2
Tartarian honeysuckle	<i>Lonicera tatarica</i>	LOTA
Large Flower Primrose Willow High	<i>Ludwigia grandiflora ssp. Hexapetala</i>	LUGRH
Moneywort	<i>Lysimachia nummularia</i>	LYNU
Japanese stiltgrass	<i>Microstegium vimineum</i>	MIVI
Chinese silvergrass	<i>Miscanthus sinensis</i>	MISI
White mulberry	<i>Morus alba</i>	MOAL

**Table A-2
DCNR Invasive Plant List**

Common Name	Scientific Name	USDA Symbol
Parrot feather watermilfoil	<i>Myriophyllum aquaticum</i>	MYAQ2
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>	MYS2
Brittle Waterlily	<i>Najas minor</i>	NAMI
Starry Stonewort	<i>Nitellopsis obtusa</i>	STPE15
Yellow Floatingheart	<i>Nymphoides peltata</i>	NYPE
Wavyleaf basketgrass	<i>Oplismenus hirtellus</i>	OPHI
Japanese pachysandra	<i>Pachysandra terminalis</i>	PATE11
Wild parsnip	<i>Pastinaca sativa</i>	PASA2
Empress tree	<i>Paulownia tomentosa</i>	PATO2
Beefsteak plant	<i>Perilla frutescens</i>	PEFR4
Bristled knotweed	<i>Persicaria longiseta</i>	PELO10
Reed canary grass	<i>Phalaris arundinacea</i>	PHAR3
Amur corktree	<i>Phellodendron amurense</i>	PHAM2
Japanese corktree	<i>Phellodendron japonicum</i>	PHJA
Lavella corktree	<i>Phellodendron lavalleyi</i>	PHLA26
Common reed	<i>Phragmites australis</i>	PHUA7
Golden bamboo	<i>Phyllostachys aurea</i>	PHAU8
Yellow Groove Bamboo	<i>Phyllostachys aureosulcata</i>	PHAU80
Giant Timber Bamboo	<i>Phyllostachys bambusoides</i>	PHBA80
Rough bluegrass	<i>Poa trivialis</i>	POYR2
Curly pondweed	<i>Potamogeton crispus</i>	POCR3
Callery pear	<i>Pyrus calleryana</i>	PYCA80
Sawtooth Oak	<i>Quercus acutissima</i>	QUAC80
Common buckthorn	<i>Rhamnus cathartica</i>	RHCA3
Jetbead	<i>Rhodotypos scandens</i>	RHSC3
Wineberry	<i>Rubus phoenicolasium</i>	RUPH
Tall fescue	<i>Schedonorus arundinaceus</i>	SCAR7
Crown-vetch	<i>Securigera varia</i>	SEVA4
Japanese Spiraea	<i>Spiraea japonica</i>	SPJA
Common Chickweed	<i>Stellaria media</i>	STME2
Bee-bee tree	<i>Tetradium daniellii</i>	TEDA
European water chestnut	<i>Trapa natans</i>	TRNA
Ravenna grass	<i>Tripidium ravennae</i>	TRRA2
Narrow-leaved cattail	<i>Typha angustifolia</i>	TYAN
Hybrid cattail	<i>Typha x glauca</i>	TYGL
Siberian elm	<i>Ulmus pumila</i>	ULPU
Linden viburnum	<i>Viburnum dilatatum</i>	VIDI80

**Table A-2
DCNR Invasive Plant List**

Common Name	Scientific Name	USDA Symbol
Guelder Rose	<i>Viburnum opulus</i>	VIOPO
Doublefile viburnum	<i>Virburnum plicatum</i>	VIPL
Siebold viburnum	<i>Viburnum sieboldii</i>	VISI
Bigleaf periwinkle	<i>Vinca major</i>	VIMA
Common periwinkle	<i>Vinca minor</i>	VIMI2
Black swallow-wort	<i>Vincetoxicum nigrum</i>	VINI3
Pale Swallow-Wort	<i>Vincetoxicum rossicum</i>	VIRO9
Japanese wisteria	<i>Wisteria floribunda</i>	WIFL
Chinese wisteria	<i>Wisteria sinensis</i>	WISI
Source: Pennsylvania Department of Conservation and Natural Resources (PA DCNR). "DCNR Invasive Plant List". Available at: http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20033786.pdf Accessed on June 13, 2019		

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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC

**INVASIVE SPECIES MANAGEMENT PLAN
Appendix B Pennsylvania Invasive Plant Survey Results**

LEIDY SOUTH PROJECT

JULY 2020

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**Table B-1
Invasive Plant Species Identified along the Hensel Replacement**

Approximate Milepost	Invasive Plant Species		Wetlands with Invasive Plant Species Present
	Low Density (Tier I)	High Density (Tier II)	
189.0	Spotted knapweed	N/A	N/A
190.1	Japanese stiltgrass	N/A	N/A
190.3	Multiflora rose	N/A	N/A
190.4	Japanese barberry, Japanese stiltgrass	N/A	N/A
190.5	Japanese stiltgrass, autumn olive	N/A	N/A
190.6	Autumn olive, multiflora rose	N/A	N/A
190.7	Multiflora rose, garlic mustard	N/A	W3-T6-HR ^a (multiflora rose), W4-T7-HR ^a (garlic mustard)
190.8	Japanese barberry, multiflora rose	N/A	N/A
190.9	Japanese barberry	N/A	N/A
191.0	Japanese stiltgrass	N/A	W1-T7-HR ^a (Japanese stiltgrass)
192.8	Bull thistle	N/A	N/A
192.9	Japanese stiltgrass, multiflora rose	N/A	W1-T7a-HR ^a (Japanese stiltgrass)
193.0	Japanese stiltgrass,	N/A	W4-T5-HR ^a (Japanese stiltgrass)
193.1	Japanese stiltgrass, multiflora rose	N/A	W4-T5-HR (Japanese stiltgrass)
193.2	Spotted knapweed, Japanese barberry	N/A	N/A
193.5	Autumn olive, multiflora rose	N/A	N/A
193.6	Garlic mustard	N/A	N/A
193.7	Multiflora rose	N/A	W3-T1-HR ^a (multiflora rose)
194.0	Garlic mustard, Japanese barberry, multiflora rose, autumn olive	N/A	N/A

^a Wetland is located within Sproul State Forest on DCNR property.

Table B-2
Invasive Plant Species Identified along the Hilltop Loop

Milepost(s)	Invasive Plant Species		Wetlands with Invasive Plant Species Present
	Low Density (Tier I)	High Density (Tier II)	
183.6	Japanese stiltgrass, multiflora rose, Japanese barberry	N/A	W3-T7a-HL ^a (Japanese stiltgrass)
184.5	Multiflora rose	N/A	W1-T5- HL (multiflora rose)
185.0	Purple loosestrife	N/A	W2-T4-HL (purple loosestrife)
^a Wetland is located within Sproul State Forest on DCNR property.			

Table B-3
Invasive Plant Species Identified along the Benton Loop

Milepost(s)	Invasive Plant Species		Wetlands with Invasive Plant Species Present
	Low Density (Tier I)	High Density (Tier II)	
119.2	Multiflora rose	N/A	W2-T3 (multiflora rose)
119.6	Multiflora rose	N/A	W2-T2 and W1-T2 (multiflora rose)
120.2	Multiflora rose	N/A	W3-T1 (multiflora rose)
120.3	Multiflora rose	N/A	N/A
120.4	Multiflora rose	N/A	N/A

Table B-4
Invasive Plant Species Identified along Project Access Roads

Access Road ID	Invasive Plant Species		Wetlands with Invasive Plant Species Present
	Low Density (Tier I)	High Density (Tier II)	
Hensel Replacement			
AR-189.5	Japanese stiltgrass	N/A	W5-T7a-HR (Japanese stiltgrass)
AR-193.2-EXT	Crown vetch	N/A	N/A
Hilltop Loop			
AR-185.7-S	Multiflora rose	N/A	N/A
AR-185.2-S	Multiflora rose	N/A	N/A
Benton Loop			
AR-119.4	Multiflora rose	N/A	W2-T2 (Multiflora rose)

**Table B-5
Invasive Plant Species Identified within Contractor Staging Areas, Contractor Yards and Aboveground Facilities**

ID	Invasive Plant Species		Wetlands with Invasive Plant Species Present
	Low Density (Tier I)	High Density (Tier II)	
Hensel Replacement Yard			
CSA-022	Multiflora rose, garlic mustard, Japanese barberry	N/A	N/A
Hilltop Loop Yards			
CY-008	Multiflora rose	N/A	N/A
CY-004	Multiflora rose	N/A	N/A
Benton Loop Yard			
CSA-013	Multiflora rose	N/A	N/A
Above Ground Facilities			
Compressor Station 607	Multiflora rose, shattercane	N/A	W2-T2-CS607A and W2-T3-CS607A (multiflora rose)
Compressor Station 620	Multiflora rose	N/A	W1-T1-CS620A (multiflora rose)

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*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT M
EROSION AND SEDIMENT CONTROL
PLAN NARRATIVE AND DRAWINGS



Transcontinental Gas Pipe Line Company, LLC

Section 2-4 E&SC/SR Plan Narrative and Drawings

Leidy South Project – Compressor Station 607

September 2019
(Revised May 2020)

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- 4.0 Types, Depth, Slope, Locations & Limitation of the Soils and Geologic Formations (NOI Checklist Item 3.b, 3.l)
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- 1 Project Location Map
- 2 Soils Map and Report
- 3 E&SC Plan BMP Design Worksheets and Calculations *(Revised May 2020)*
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1.0 Project Description (NOI Checklist Item 3.n)

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. is proposing the Leidy South Project – Compressor Station 607. Compressor Station 607 will consist of installing two Solar Titan 130 gas driven turbine compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total), gas coolers and associated ancillary facilities in Fairmount Township, Luzerne County, Pennsylvania.

Compressor Station 607 is proposed as part of the overall Leidy South Project (Project). The Project is an expansion of Transco’s existing natural gas transmission system and an extension of Transco’s system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco’s Zone 6. Transco’s Zone 6 includes the portion of the Transco system in Pennsylvania, New York, New Jersey, and Maryland.

The E&SC Plan shall be designed and implemented to be consistent with the Post Construction Stormwater Management (PCSM) Plan under 25 Pa. Code § 102.8 (relating to PCSM requirements). Transco will use and implement the practices, measures and details outlined herein to control soil erosion and off-site sedimentation. All work and disturbed areas are located within Transco property, existing easements or legally obtained workspace. The limit of disturbance (LOD) for Compressor Station 607 will be approximately 18.2 acres. Subject to receipt of permits and authorizations, Transco anticipates construction of the Project would commence in January 2021 to meet a target in-service date of December 1, 2021.

2.0 Topographic Features of the Area (NOI Checklist Item 3.a)

A Project Location Map for Compressor Station 607 is included in Attachment 1. This map shows the topographical features of the general site vicinity and is based on the USGS 7.5 Minute topographical mapping of the Sweet Valley, Pennsylvania quadrangles.

3.0 Receiving Surface Waters (NOI Checklist Item 3.e)

The following table (Table 1) lists each watershed located in Compressor Station 607 Project Area, its Chapter 93 Water Quality Standards, and Pennsylvania Fish and Boat

Commission classifications. A Wetland and Watercourse Delineation Report is included in Attachment A of the ESCGP-3 permit application.

Table 1 Receiving Waters			
Watershed Name	Designated Use	Existing Use	PFBC Classification
Lick Branch	HQ-CWF, MF	-	Class A Wild Trout
Phillips Creek	HQ-CWF, MF	-	Class A Wild Trout
MF: Migratory Fishes, HQ-CWF: High Quality- Cold Water fishes			

4.0 Types, Depth, Slope, Locations & Limitation of the Soils and Geologic Formations (NOI Checklist Item 3.b, 3.I)

The soil associations on site were identified by soil map units as mapped in the Web Soil Survey website (<https://websoilsurvey.sc.egov.usda.gov/>) by the United States Dept. of Agriculture (USDA), Natural Resources Conservation Service (NRCS). There are 6 soil mapping units located within the LOD, see Table 2 below:

Table 2 – Soils Mapping Units within LOD	
Soil Mapping Unit	Soil Series
LaB	Lackawanna channery silt loam, 3 to 8 percent slopes
LaC	Lackawanna channery silt loam, 8 to 15 percent slopes
LcB	Lackawanna channery silt loam, 3 to 8 percent slopes, extremely stony
LcD	Lackawanna channery silt loam, 8 to 25 percent slopes, extremely stony
MoB	Morris channery silt loam, 0 to 8 percent slopes
WIB	Wellsboro channery silt loam, 3 to 8 percent slopes

Detailed descriptions and mapping of soil mapping units are provided in the Attachment 2. Soil use limitations (outlined in Table 3) were reviewed in relation to the Compressor Station 607 and resolutions were identified in Section 4.1.

Table 3. Limitations of Pennsylvania Soils Pertaining to Earth Disturbance Projects (Erosion and Sediment Control Best Management Practice (BMP) Manual – Technical Guidance Number 363-3134-008/Page 401)

SOIL NAME	SOIL WITH SLOPE CLASS	CUTBANKS CAVE	CORROSIVE TO CONCRETE\STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
Lackawanna	LaC, LaD, LcB, LcD	X	C	X			X	X	X			X	X				X
Morris	MoB	X	C/S	X	X		X	X	X	X		X	X				X
Wellsboro	WIB	X	C/S	X	X		X	X	X	X	X		X				X

4.1 Resolution of Soil Limitations

Transco proposes the following resolutions to compensate for soil limitations summarized in Table 3 above:

1. To offset the caving of cutbanks, trenching operations will be conducted in accordance with the OSHA Technical Manual for Trenching.
2. Preventative coatings shall be used to prevent corrosion of concrete and/ or steel.
3. When bedrock is encountered it will be removed by mechanical methods or blasting. Blasting operations will conform with all local, state, and federal regulations.
4. Precautions will be taken to prevent slope failure when working within low strength soils by flattening cut / fill slopes, not overloading, maintaining lateral support, and preventing saturation of soils. Low strength soils will not be used for roadway construction.
5. Excavation in soils prone to flooding, slow percolation, ponding, wetness, located in a seasonal high water table, or which are hydric, will likely encounter water. Compensation will involve dewatering with appropriate means such as pump water filter bags, sediment traps, etc.

6. Soils that have the potential to swell, shrink, or heave due to frost action may cause damage to roadways or pads. Where foundations are critical, compensation may require removal and replacement of soils with suitable material.
7. In circumstances where soils appear to be a poor source of topsoil, droughty or prone to wetness, soil testing will be performed to determine the appropriate applications of soil amendments to promote growth. Soils onsite that are fair sources of topsoil, will be identified, stripped and stockpiled for use during restoration.
8. In order to minimize erosion of soils that are easily erodible, compensation may involve providing a protective lining, to apply seed, mulch, erosion control blankets (either in rolls or hydraulically applied), tracking slopes, upstream diversions, waterbars, etc. to minimize soil erosion.

4.2 Geologic Formations

Transco utilized United States Geological Survey (USGS), Geologic Map of Pennsylvania - Map 1, dated 1980 (online), to evaluate geologic hazards on the Project. The desktop analysis completed for the Project revealed that the Compressor Station 607 does not cross any known, mapped, or inferred faults. No mines or Karst formations were identified in the site vicinity. However, the analysis outlined that Compressor Station 607 lies within a zone of moderate to low landslide incidence and susceptibility.

Due to the moderate to low landslide incidence and susceptibility, a Geological Hazard Assessment and Mitigation Plan was completed and is submitted with this application (Attachment B). This report provides information about any potential geological hazards occurring in the vicinity of the Compressor Station 607 Project area. The Geological Hazard Assessment and Mitigation Plan also identifies appropriate best management practices to avoid and mitigate for conditions encountered during construction.

5.0 Characterizations of Earth Disturbance Activities, Including Past, Present and Proposed Land Uses (NOI Checklist Item 3.c)

The Compressor Station 607 will involve the installation of two gas driven turbine compressor units, gas coolers, associated facilities, parking area and access roads. Transco will use and implement the practices, measures, and details to control soil erosion and off-site sedimentation during construction. Using data taken from Google Earth and Multi-Resolution Land Characteristics (MRLC) Consortium website (<https://www.mrlc.gov/viewer/>), it appears that

land use for the past 20 years has been cultivated cropland. Based on the surrounding land characteristics, it appears that land use within the past 50 years would have been cropland, forested land or meadow.

6.0 Erosion and Sediment Control Best Management Practices (NOI Checklist Item 3.f)

Various erosion and sediment control measures will be used during the construction of Compressor Station 607. BMPs proposed to be used at the Site to control soil erosion and sediment pollution are listed below. Details of BMPs proposed to be used at the Project location is included in the Erosion and Sedimentation Control Plan sheets. BMP's listed will be used at the Project location at the discretion of the environmental inspector, when found necessary to comply with 25 PA Code Chapter 102 and to adequately address potential erosion and sediment control issues.

Rock Construction Entrances / Street Sweeping

Rock construction entrances shall be installed whenever sediment tracking onto road surfaces is a potential or if required by the county conservation district or other agency. Soil erosion control measures shall be installed, if required and as needed. In special protection watersheds, either a 100' long rock construction entrance or a standard 50' rock construction entrance with a wash rack will be used at the construction entrance to wash construction vehicle wheels before they enter the public roadway. The wash rack will discharge to a 24" compost filter sock (min.). Rock construction entrance thickness shall be constantly maintained to the specified dimensions by adding rock. All sediment deposited on roadways shall be removed and returned to the construction site immediately. If a standard rock construction entrance is unfeasible, public street sweeping with a vacuum sweeper and rolling of dirt and gravel roads will occur at the end of each work day (or more frequently as needed) and/or manual cleaning of tires prior to site egress may also be implemented. Vacuum sweepers can remove accumulated sediment from streets before it is washed into surface waters. Tires can be cleaned off manually with a broom prior to exiting. Rolling of dirt roads can stabilize areas affected by tracked mud.

Compost Filter Sock

Compost filter sock shall be placed downslope of disturbed areas to serve as a sediment barrier and filter. Filter sock shall be placed at existing level grade, parallel to contours, with both ends of the sock extended up slope at a 45 degree angle. Socks can be used on both steep and rocky slopes. Socks can range in size from 12 inch to 32 inch diameter depending on the site

conditions. The Maximum Permissible Slope Lengths Above Compost Filter Socks will be used to determine the sizes of compost filter.

Timber Mats

Timber mats can be used for temporary wetland crossings. The timber mats are placed over the wetland to allow equipment to cross and then are removed.

Safety Fence

Safety fence shall be installed to protect sensitive environmental features as depicted on the plan drawings. The fencing shall remain in place during all phases of construction.

Inlet Filter Bags

Inlet filter bags are used as an inlet protection at the entrance of catch basins for trapping particles not passing a No. 40 Sieve. Berms shall be required for all installation.

Diversions/Collection Channels

Diversions/Collection channels shall be used to divert runoff from disturbed areas and convey it to appropriate BMPs such as a sedimentation basin or sediment trap.

Sedimentation Basin

Sedimentation basins are used to trap sediments from the disturbed area. A forebay may be provided near the inlet of a basin. A perforated riser pipe and outlet barrel are used for dewatering. Each sedimentation basin should have an emergency spillway with minimum bottom width of 8 ft and a sediment storage zone of 1,000 cubic feet per disturbed acre. Embankments should be maintained with a grassy vegetative cover. After completing earth disturbance activities, a sedimentation basin can be converted to a permanent stormwater BMP for treating excess runoff.

Typical Topsoil Stockpile

The maximum stockpile height shall not exceed 35 feet. Stockpile slopes shall be no steeper than 2H:1V. Stockpiles shall be stabilized in accordance with temporary seeding specifications and mulch is to be maintained until the stockpile is stabilized. Stockpile location shown on the plans are illustrative and may vary in location as construction proceeds.

7.0 Recycling and Disposal of Materials (NOI Checklist Item 3.k)

The restoration of the pipeline right-of-way will require the removal of the temporary materials. The temporary materials include, but may not be limited to, stone surfaces and

associated geotextiles. The contractors are required to dispose of the materials at suitable disposal or recycling sites and in compliance with local, state and federal regulations.

Contractors are required to inventory and manage their construction site materials. The goal is to be aware of the materials on-site, ensure they are properly maintained, used, and disposed of, and to make sure the materials are not exposed to stormwater. The following materials or substances are expected to be present on-site during construction (Note: this list is not an all-inclusive list and the materials management plan can be modified to address additional materials used on-site):

- Acids
- Detergents
- Fertilizers (nitrogen/phosphorus)
- Hydroseeding mixtures
- Petroleum based products
- Sanitary wastes
- Soil stabilization additives
- Solder
- Solvents
- Other (list here):

These materials must be stored as appropriate and shall not contact storm or non-stormwater discharges. Contractor shall provide a weatherproof container to store chemicals or erodible substances that must be kept on the Site. Contractor is responsible for reading, maintaining, and making employees and subcontractors aware of Material Safety Data Sheets (MSDSs).

8.0 Thermal Impacts (NOI Checklist Item 3.m)

Due to the overall nature of the Project, thermal impacts to surface waters are not anticipated. The primary means to address thermal impacts on this Project is to limit the size and duration of exposed earth.

Stormwater runoff associated with the installation of the compressor units will be routed through the stormwater BMP's designed to retain and infiltrate the first surge of water from the site. The first surge of water will be the warmest water for the duration of the storm event and will quickly cool as the storm event progresses. The BMPs are designed to capture and infiltrate this

warmest surge of stormwater. Based on routing calculations, stormwater is not discharged from the BMPs for the first 12 hours during a 100-year/24-hour storm event. The retention period is longer for less intense storms. Therefore, as a result of these measures, no significant thermal impact to the receiving waters is anticipated.

9.0 Antidegradation Requirements (NOI Checklist Item 3.p)

A hydraulic analysis was conducted to determine the location of Compressor Station 607 along Transco's existing pipeline system. The defined hydraulic range for Compressor Station 607 is primarily located within exceptional value (EV) or high-quality (HQ) watersheds. Transco used various criteria to evaluate parcels suitable for a compressor station within the hydraulic range required to meet the purpose and need of the project. The criteria for parcel evaluation included but was not limited to existing conditions, resource impacts, workspace, and reasonable availability. Based on the location selected for Compressor Station 607, impacts to EV and HQ watersheds are unavoidable. Transco determined that there are no cost-effective and environmental sound viable non-discharge alternatives for the project.

Earth disturbance will be minimized to the extent practical and will be phased or sequenced to only disturbed portions that are necessary for the specific scope of work. Where possible, the LOD was decreased to avoid additional disturbance to the extent practical.

Anti-Degradation Best Available Combination of Technologies (ABACT) standards have been proposed for Compressor Station 607 because there are no viable non-discharge alternatives. The Erosion and Sediment Control Plan prepared for the Project outlines a more stringent design and E&S BMPs that meet ABACT standards.

The Compressor Station 607 is located in HQ watersheds and construction activities in these areas will result in increased discharge of stormwater to surface waters which will be mitigated by the implementation of post construction stormwater management (PCSM) BMP's. Proposed PCSM BMPs are designed with stormwater volume reduction and water quality treatment maximized to the extent practicable within the site constraints to maintain and protect existing water quality and existing and designated uses.

10.0 Riparian Buffers (NOI Checklist Item 3.o)

Temporary workspace associated with Compressor Station 607 is located within the non-forested riparian buffer of stream S1-T2-607A. After completing the construction activities, the impacted riparian area will be reseeded with a riparian seed mix.

Because the project is temporary in nature and the site will be fully restored to its preexisting condition leaving riparian buffers undisturbed to the extent practical, it is eligible for the Riparian Buffer Waiver under 25 PA Code §102.14(d)(2)(iv). As such, a Riparian Buffer Waiver has been requested along with this ESCGP-3 application (Section 1-7).

11.0 Project Site Runoff (NOI Checklist Item 3.d)

The construction of Compressor Station 607 will increase the volume of stormwater runoff due to the increase in the type and size of the impervious area. The contractor will construct stormwater BMPs to mitigate the increase in volume and peak rates associated with construction. Refer to the Post-Construction Stormwater Management (PCSM) Plan for additional information (Section 3 of this ESCGP-3 Application). Changes in stormwater runoff between pre- and post-development conditions for 2-year rainfall event and changes in peak discharge rates for 1, 2, 10, 25, 50 and 100-yr storms are given in the tables below.

<i>Pre- and Post-Development Stormwater Volume (cf) of 2-yr Storm</i>		
Pre-development	Post-development before BMPs	Net
52,920	66,782	13,862

<i>Pre-Construction Peak Discharge Rates (cfs)</i>					
1-year	2-year	10-year	25-year	50-year	100-year
6.92	11.16	24.72	35.59	45.88	58.41

<i>Post-Construction without BMPs Peak Discharge Rates (cfs)</i>					
1-year	2-year	10-year	25-year	50-year	100-year
10.90	16.24	32.56	45.18	56.91	70.90

12.0 Offsite Discharge Analysis

The stormwater BMP’s being constructed at Compressor Station 607 are in areas that will discharge stormwater to offsite non-surface water. These areas have been analyzed to

ensure that these discharges will be non-erosive to adjacent property owners. The analysis has been performed in accordance with PADEP Document 3150-FS-DEP4124, "Off-Site Discharges of Stormwaters to Areas That Are Not Surface Waters". The analysis is presented in Attachment 5- Offsite Discharge Report. Criteria used to determine that offsite erosion at each discharge point will not occur are presented below:

Wet Detention Pond #1 with Forebay

This wet pond is in the northeast corner of the site. The outfall discharges to a sediment trap outlet basin at the northeast corner of the wet pond. Calculations provided for the project site runoff show that there is no net increase in rate of runoff during any storm event at the outfall. The area downstream of the outfall is over 90% vegetated. Additionally, the velocity coming out of the outfall protection for the 25-yr 24-hr storm was calculated and found to be 0.86 fps. Since the outlet velocity is below 2.5 fps downstream erosion will be minimal if not negligible.

Infiltration Basin

This infiltration basin is in the northern part of the site between Maransky Road and the pipeline right-of-way. The outfall discharges to a sediment trap outlet basin at the northeast corner of the wet pond. Calculations provided for the project site runoff show that there is no net increase in rate of runoff during any storm event at the outfall. The area downstream of the outfall is over 90% vegetated. Additionally, velocity coming out of the outfall protection for the 25-yr 24-hr storm was calculated and found to be 2.47 fps. Since the outlet velocity is below 2.5 fps downstream erosion will be minimal if not negligible.

13.0 Site Restoration Plan

13.1 Previous Land Use

Using data taken from Google Earth and Multi-Resolution Land Characteristics (MRLC) Consortium website (<https://www.mrlc.gov/viewer/>), it appears that land use for the past 20 years has been cultivated cropland. Based on the surrounding land characteristics, it appears that land use within the past 50 years would have been cropland, forested land or meadow.

13.2 Disturbance Activities, Changes to Permanent Topographic Land Cover

The Compressor Station 607 will involve the installation of two gas driven turbine compressor units, gas coolers, associated facilities, parking area and access roads. Transco

will use and implement the practices, measures, and details to control soil erosion and off-site sedimentation during construction.

13.3 Restoration Measures

Stormwater controls which will be installed during construction have been designed to avoid impacts to natural drainage features. These controls will only have temporary impacts while installed and will be removed once the site is stabilized with vegetation. Minimal impacts to wetland resources is anticipated, as these functions are generally limited when compared to watercourses.

Construction debris will be removed from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration. Rock in excess of four inches from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas will be removed at the landowner's request. Construction right-of-way will be graded to restore pre-construction contours and leave the soil in the proper condition for planting. Temporary sediment barriers will be removed and replaced by permanent erosion control measures or when revegetation is successful.

Wetland Restoration Measures

Permanent cover wetland mix is ERNST 122 FACW Meadow Mix at 20 lb/acre.t. Lime, fertilizer or mulch will not be used in wetland areas. In the event that final seeding and mulching is deferred more than 20 days after the trench is backfilled, all slopes adjacent to wetlands shall be blanketed for a minimum of 100 feet on each side of the crossing.

Specific procedures will be developed in coordination with the appropriate land management or state agency, where necessary, to prevent the invasion or spread of undesirable exotic vegetation (such as purple loose strife and phragmites). It will be ensured that all disturbed areas permanently revegetate.

All equipment mats will be removed upon completion of construction, as well as temporary sediment barriers located at the boundary between wetland and adjacent upland areas after upland revegetation and stabilization of adjacent upland areas are successful.

Riparian Restoration Measure

Temporary workspace associated with Compressor Station 607 is located within the non-forested riparian buffer of stream S1-T2-607A. Permanent cover for riparian areas will include 30lbs/acre of a seed mix from Mixture 1 plus 20 lbs/acre of Ernst 178 Riparian buffer mix.

Soil Compaction Measures

Topsoil and subsoil will be tested for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Tests will be conducted on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Penetrometers or other appropriate devices will be used to conduct tests.

Severely compacted agricultural areas will be plowed with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling. Refer to the Transco Project-specific Agricultural Construction and Monitoring Plan. Appropriate soil compaction mitigation will be performed in severely compacted residential areas.

Revegetation Plan and Procedures

The construction site should be stabilized as soon as possible after completion. Establishment of final cover must be initiated no later than 7 days after reaching final grade. Temporary erosion and sedimentation control BMPs can be removed when the site meets final stabilization. Final stabilization means that all soil-disturbing activities are completed, and that either a permanent vegetative cover with a density of 70% or greater has been established or that the surface has been stabilized by hard cover such as pavement or buildings. It should be noted that the 70% requirement refers to the total area vegetated and not just a percent of the site.

13.4 Maintenance and Evaluation for Effectiveness

Follow-up inspections of all disturbed areas will be conducted as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover

of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful when upon visual survey, crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise. Continue revegetation efforts until revegetation is successful.

All BMPs should be properly maintained to ensure their effectiveness. Sheet flow conditions and infiltration must be sustained throughout the life of the BMP. BMPs should be inspected for clogging from sediment or debris, damage by foot or vehicular traffic, and flow channelization. Inspections should be made on a quarterly basis for the first two years following installation, and then twice per year thereafter. Inspections should also be made after every storm event greater than 1 inch during the establishment period.

Channel linings should be inspected for signs of erosion or dislodging, as applicable. Channels should be inspected for debris, overgrown vegetation, and other blockages. Catch Basins and Inlets should be inspected and cleaned at least two times per year and after runoff events. Vegetation along the surface of the infiltration basin should be maintained in good conditions. Vehicles should not be parked or driven on an infiltration basin and care should be taken to avoid excessive compaction by mowers. Inspect the basin after runoff events and make sure that runoff drains within 72 hours. Wet pond should be inspected at least 4 times per year and after major storms (> 2 inches per 24 hours) or rapid ice breakup. The pond drain should be inspected and tested 4 times per year.

During the first growing season or until established, wet pond vegetation should be inspected every 2 to 3 weeks. Wet ponds should be inspected at least 4 times per year and after major storms (greater than 2 inches in 24 hours) or rapid ice breakup. Inspections should access the vegetation, erosion, flow channelization, bank stability, inlet/outlet conditions, embankment and sediment/debris accumulation. Pond drains should be inspected 4 times per year.

Vegetated areas will be inspected weekly and after runoff events until permanent vegetation is achieved. Once the vegetation is established, inspections of health, diversity, and density should be performed at least twice per year, during both the growing and non-growing season. Vegetative cover should be sustained at 85% and reestablished if damage

greater than 50% is observed. Damaged BMPs will be repaired as soon as possible upon discovery. Repairs will be made to restore damaged BMPs to their original design condition.

Transco will limit routine vegetation mowing or clearing within wetlands and adjacent to waterbodies. Transco will not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

The stormwater BMP's being constructed at Compressor Station 607 are in areas that will discharge stormwater to offsite non-surface water. These areas have been analyzed to ensure that these discharges will be non-erosive to adjacent property owners. Criteria used to determine that offsite erosion at each discharge point will not occur are presented below:

Diversion/Collection Channels

Diversion/Collection channels shall be used to divert runoff from disturbed areas and convey it to appropriate BMPs such as a sedimentation basin or sediment trap.

Wet Detention Pond #1 with Forebay

This wet pond is in the northeast corner of the site. The outfall discharges to a outlet basin at the northeast corner of the wet pond. Calculations provided for the project site runoff show that there is no net increase in rate of runoff during any storm event at the outfall. The area downstream of the outfall is over 90% vegetated. Additionally, the velocity coming out of the outfall protection for 25-yr 24-hr storm was calculated and found to be 0.86 fps. Since the outlet velocity is below 2.5 fps downstream erosion will be minimal if not negligible.

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Post-Construction Wetland and Watercourse Monitoring shall occur annually for a period of five years following construction and include wetlands and watercourses impacted

by the Project, and a monitoring report submitted thereafter. Each monitoring report will include, at a minimum, the following information:

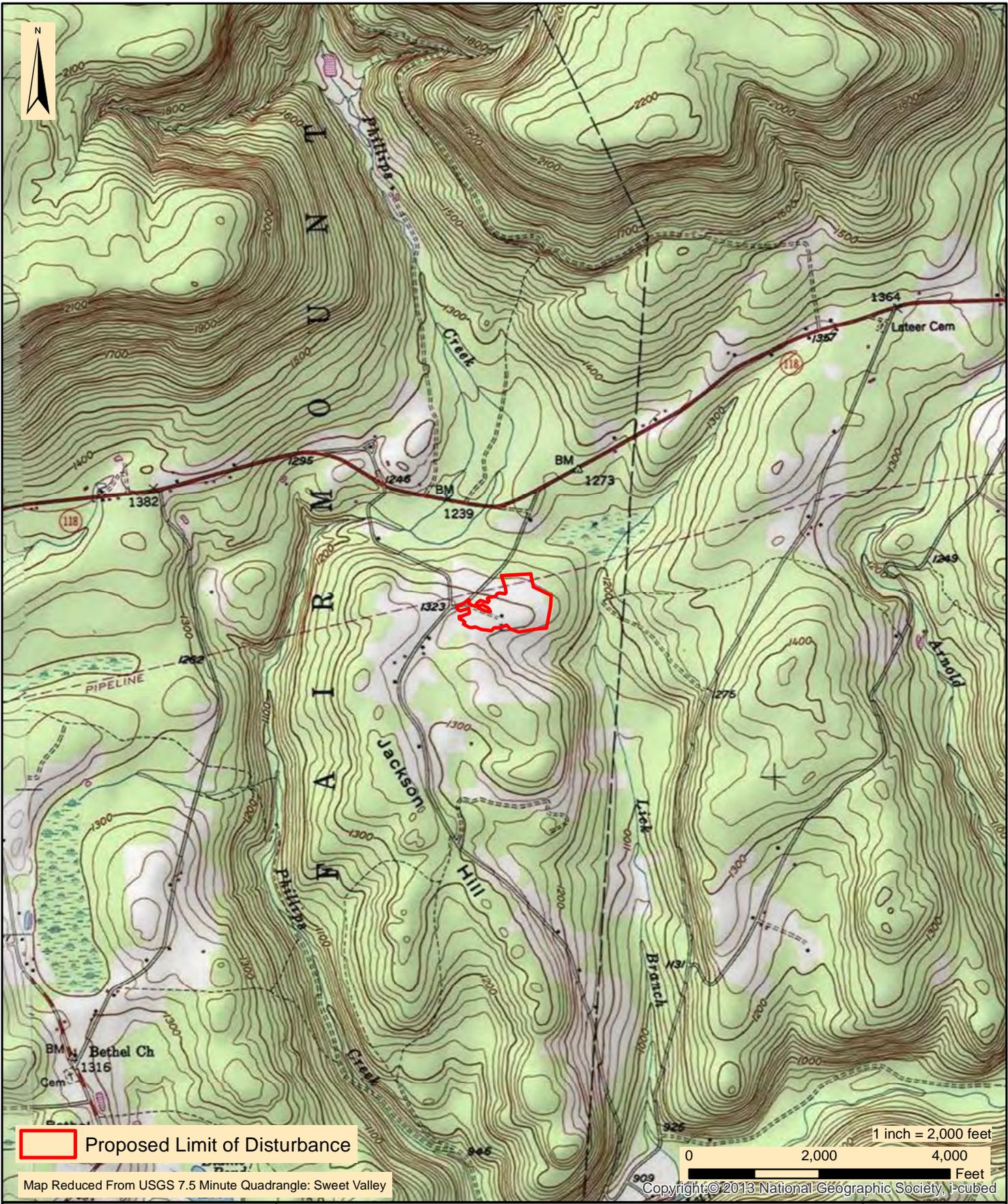
- Information describing the presence or absence of hydrology at the time of inspection and a narrative comparison to hydrology present in the wetland or watercourse during pre-permitting field investigation(s);
- Photographic Documentation;
- Vegetation data including inventory of plant species, percent coverage of native hydrophytic species (wetlands), and stem counts survival; and
- Identification of any problems or concerns that require remedial measures, including loss of hydrology, and a plan to address the deficiencies.

Contractor shall provide a weatherproof container to store chemicals or erodible substances that must be kept on the site. Contractor is responsible for reading, maintaining, and making employees and subcontractors aware of Material Safety Data Sheets (MSDSs).

14.0 The Erosion and Sediment Control Plan Shall be Prepared by a Person Trained and Experienced in Erosion Control Methods and Techniques

These plans and narrative were prepared by Kevin Clark, PE (BAI Group, LLC) of State College, PA in accordance with the Pennsylvania Department of Environmental Protection Erosion and Sediment Pollution Control Program Manual, March 2012. Plan preparer's resume is provided in Attachment C of the ESCGP-3 permit package).

ATTACHMENT 1
PROJECT LOCATION MAP



Proposed Limit of Disturbance

WHM
 designs, permits, resolutions
consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
 NEW **PROPOSED** COMPRESSOR STATION 607
 PROJECT LOCATION MAP

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

Date: 8/21/2019
 WHM Drawing Number: WILLIAMS204A001
 Drawn By: FTN
 Figure Number: 5

ATTACHMENT 2
SOILS MAP AND REPORT



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Luzerne County, Pennsylvania**



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

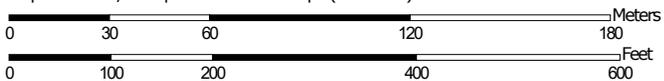
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:2,250 if printed on A landscape (11" x 8.5") sheet.



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

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

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

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: Luzerne County, Pennsylvania
 Survey Area Data: Version 13, Sep 19, 2018

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

Date(s) aerial images were photographed: Aug 29, 2010—Nov 22, 2016

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LaB	Lackawanna channery silt loam, 3 to 8 percent slopes	13.9	57.0%
LaC	Lackawanna channery silt loam, 8 to 15 percent slopes	1.5	6.1%
MoB	Morris channery silt loam, 0 to 8 percent slopes	1.8	7.4%
MsB	Morris channery silt loam, 0 to 8 percent slopes, extremely stony	0.7	2.9%
OpD	Oquaga and Lordstown extremely stony silt loams, 8 to 25 percent slopes	0.0	0.1%
WIB	Wellsboro channery silt loam, 3 to 8 percent slopes	6.5	26.5%
Totals for Area of Interest		24.5	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor

Custom Soil Resource Report

components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Luzerne County, Pennsylvania

LaB—Lackawanna channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w092
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lackawanna and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lackawanna

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from reddish sandstone, siltstone, and shale

Typical profile

Ap - 0 to 7 inches: channery silt loam
Bw1 - 7 to 17 inches: channery silt loam
Bw2 - 17 to 26 inches: channery loam
Bx - 26 to 60 inches: channery loam
C - 60 to 72 inches: very channery loam

Properties and qualities

Slope: 3 to 8 percent
Percent of area covered with surface fragments: 0.0 percent
Depth to restrictive feature: 17 to 36 inches to fragipan
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 16 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Wellsboro

Percent of map unit: 8 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Oquaga

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Upper third of mountainflank, crest, nose slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Morris

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

LaC—Lackawanna channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w095
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lackawanna and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lackawanna

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Shoulder, backslope

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Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Loamy till derived mainly from reddish sandstone, siltstone, and shale

Typical profile

Ap - 0 to 7 inches: channery silt loam

Bw1 - 7 to 17 inches: channery silt loam

Bw2 - 17 to 26 inches: channery loam

Bx - 26 to 60 inches: channery loam

C - 60 to 72 inches: very channery loam

Properties and qualities

Slope: 8 to 15 percent

Percent of area covered with surface fragments: 0.0 percent

Depth to restrictive feature: 17 to 36 inches to fragipan

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 16 to 36 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Wellsboro

Percent of map unit: 10 percent

Landform: Hills, mountains

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Oquaga

Percent of map unit: 3 percent

Landform: Mountains, hills

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Upper third of mountainflank, crest, nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear

Hydric soil rating: No

Morris

Percent of map unit: 2 percent

Landform: Hills, mountains

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Interfluve, base slope

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Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

MoB—Morris channery silt loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2vclq
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Morris and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Morris

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till from reddish sandstone, siltstone, and shale

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bw - 8 to 12 inches: channery silt loam
Eg - 12 to 16 inches: channery silt loam
Bx - 16 to 60 inches: channery silt loam
C - 60 to 72 inches: channery loam

Properties and qualities

Slope: 0 to 8 percent
Percent of area covered with surface fragments: 0.0 percent
Depth to restrictive feature: 10 to 22 inches to fragipan
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w

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Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Wellsboro

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Norwich

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

MsB—Morris channery silt loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2vxct
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Morris, extremely stony, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Morris, Extremely Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till from reddish sandstone, siltstone, and shale

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: channery silt loam

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Bw - 5 to 12 inches: channery silt loam
Eg - 12 to 16 inches: channery silt loam
Bx - 16 to 60 inches: channery silt loam
C - 60 to 72 inches: channery loam

Properties and qualities

Slope: 0 to 8 percent
Percent of area covered with surface fragments: 7.0 percent
Depth to restrictive feature: 10 to 22 inches to fragipan
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Norwich, extremely stony

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Wellsboro, extremely stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Interfluve, side slope, head slope
Down-slope shape: Convex, concave
Across-slope shape: Convex, linear
Hydric soil rating: No

OpD—Oquaga and Lordstown extremely stony silt loams, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: 9yhm
Elevation: 700 to 1,800 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 52 degrees F

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Frost-free period: 110 to 180 days

Farmland classification: Not prime farmland

Map Unit Composition

Oquaga and similar soils: 55 percent

Lordstown and similar soils: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oquaga

Setting

Landform: Hillslopes

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Reddish ablation till derived from sandstone and siltstone

Typical profile

A - 0 to 7 inches: channery silt loam

Bw - 7 to 30 inches: very channery silt loam

R - 30 to 42 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 25 percent

Percent of area covered with surface fragments: 15.0 percent

Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Hydric soil rating: No

Description of Lordstown

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Typical profile

A - 0 to 7 inches: channery silt loam

Bw - 7 to 26 inches: channery silt loam

C - 26 to 30 inches: very channery loam

2R - 30 to 42 inches: unweathered bedrock

Custom Soil Resource Report

Properties and qualities

Slope: 8 to 25 percent
Percent of area covered with surface fragments: 9.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Hydric soil rating: No

WIB—Wellsboro channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2vck5
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Wellsboro and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wellsboro

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till from reddish sandstone, siltstone, and shale

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bw - 8 to 22 inches: channery silt loam
Bx - 22 to 55 inches: channery loam
C - 55 to 72 inches: very channery loam

Custom Soil Resource Report

Properties and qualities

Slope: 3 to 8 percent
Percent of area covered with surface fragments: 0.0 percent
Depth to restrictive feature: 14 to 30 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 13 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Lackawanna

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Morris

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Oquaga

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Upper third of mountainflank, crest, nose slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

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ATTACHMENT 3
E&SC PLAN BMP DESIGN WORKSHEETS
AND CALCULATIONS

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Attachment (Revised May 2020)

- 3.1 Compost Filter Sock Worksheets (Standard E&S Worksheet #1)
- 3.2 Channel Design Worksheets (Standard E&S Worksheet #11)
- 3.3 Riprap Apron Worksheet (Standard E&S Worksheet #20)
- 3.4 Outlet Basin Design Worksheet
- 3.5 Sediment Basin Design Worksheets
- 3.6 Anti-Seep Collar Design Worksheet

ATTACHMENT 3
E&SC PLAN BMP DESIGN WORKSHEETS
AND CALCULATIONS

ATTACHMENT 3.1
COMPOST FILTER SOCK WORKSHEETS

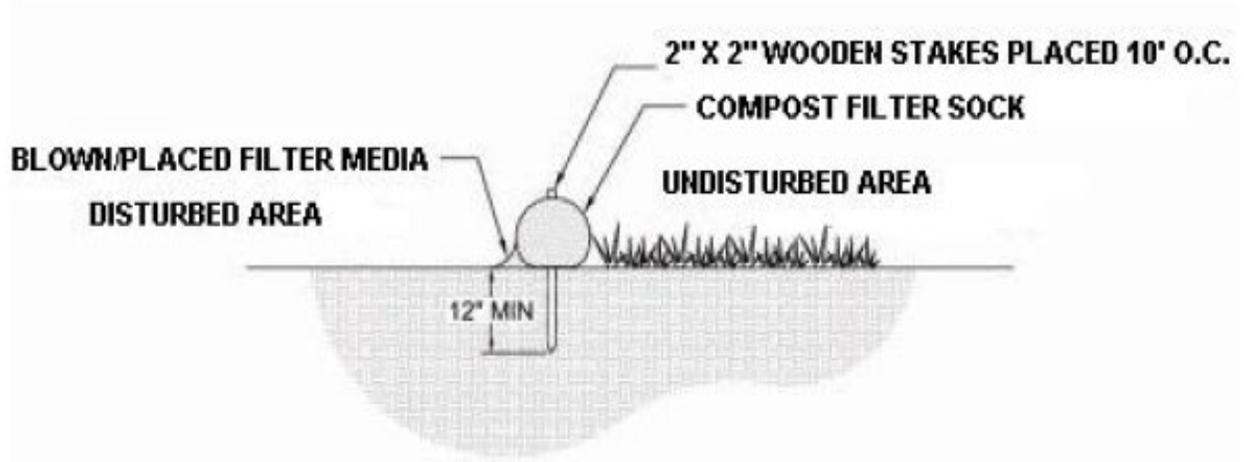
STANDARD E&S WORKSHEET #1
Compost Filter Socks

PROJECT NAME: Leidy South – Compressor Station 607

LOCATION: Compressor Station 607

PREPARED BY: FJ DATE: 8/6/2019

CHECKED BY: KCC DATE: 8/8/2019



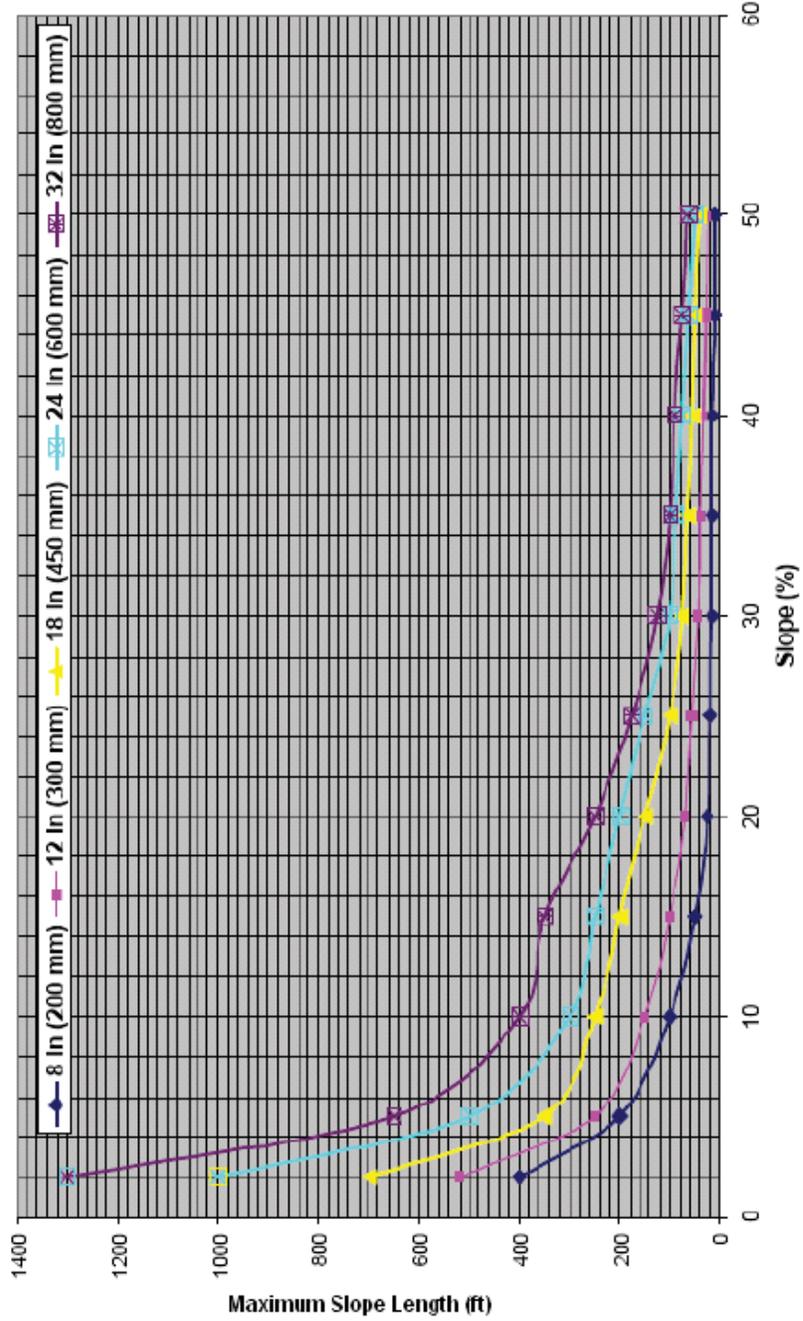
SOCK NO.	Dia. In.	LOCATION	SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FT)
CFS-607A 1	24	see map	7	300
CFS-607A 2	24	see map	7	300
CFS-607A 3	24	see map	7	300
CFS-607A 4	24	see map	7	300
CFS-607A 5	24	see map	7	300
CFS-607A 6	24	see map	7	300
CFS-607A 7	24	see map	7	300
CFS-607A 8	24	see map	8	320
CFS-607A 9	24	see map	8	320
CFS-607A 10	24	see map	8	320
CFS-607A 11	24	see map	7	374
CFS-607A 12	24	see map	7	374
CFS-607A 13	24	see map	7	374
CFS-607A 14	24	see map	7	374
CFS-607A 15	24	see map	7	374
CFS-607A 16	24	see map	7	374
CFS-607A 17	24	see map	7	374
CFS-607A 18	24	see map	7	374

STANDARD E&S WORKSHEET #1
Compost Filter Socks

CFS-607A 19	24	see map	7	374
CFS-607A 20	24	see map	7	147
CFS-607A 21	24	see map	7	147
CFS-607A 22	24	see map	7	147
CFS-607A 23	24	see map	7	147
CFS-607A 24	24	see map	7	147
CFS-607A 25	12	see map	3	233
CFS-607A 26	12	see map	3	233
CFS-607A 27	12	see map	3	233
CFS-607A 28	12	see map	4	300
CFS-607A 29	12	see map	4	300
CFS-607A 30	12	see map	4	300

STANDARD E&S WORKSHEET #1
Compost Filter Socks

FIGURE 4.2
MAXIMUM PERMISSIBLE SLOPE LENGTH ABOVE COMPOST FILTER SOCKS



NOTE: 8" diameter socks should only be used to control small ($\leq 1/4$ acre) disturbed areas on individual house lots).

Adapted from Filtrxxx

ATTACHMENT 3.2
CHANNEL DESIGN WORKSHEETS

STANDARD E&S WORKSHEET # 11

Channel Design Data

PROJECT NAME: Leidy South-Compressor Station 607

Prepared by: FPV, 05/2020

LOCATION: Fairmount Township, Luzerne County, Pennsylvania

Checked by: KCC, 05/2020

CHANNEL OR CHANNEL SECTION		CC #1	CC #1	CC #2	CC #2
TEMPORARY OR PERMANENT?	(T OR P)	P	P	P	P
DESIGN STORM	(2, 5, OR 10 YR)	10 YR	10 YR	10 YR	10 YR
ACRES	(AC)	1.23	1.23	0.60	0.60
MULTIPLIER	(1.6, 2.25, or 2.75) ¹	N/A	N/A	N/A	N/A
Q _r (REQUIRED CAPACITY)	(CFS)	6.34	6.34	2.54	2.54
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	9.28	10.44	4.04	4.19
PROTECTIVE LINING ²		ECM (SC250)	Vegetated ECM	ECM (SC250)	Vegetated ECM
n (MANNING'S COEFFICIENT) ²		0.040	0.042	0.040	0.048
V _a (ALLOWABLE VELOCITY)	(FPS)	9.5	15.0	9.5	15
V (CALCULATED AT FLOW DEPTH d)	(FPS)	3.5	3.5	2.8	2.5
τ _a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT ²)	2.5	8.0	2.5	8.0
τ _d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT ²)	1.2	1.3	0.8	0.9
CHANNEL BOTTOM WIDTH	(FT)	2	2	2	2
CHANNEL SIDE SLOPES	(H:V)	4	4	4	4
D (TOTAL DEPTH)	(FT)	2.00	2.00	2.00	2.00
CHANNEL TOP WIDTH @ D	(FT)	18.0	18.0	18.0	18.0
d (CALCULATED FLOW DEPTH)	(FT)	0.60	0.65	0.40	0.45
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	6.80	7.20	5.20	5.60
BOTTOM WIDTH: FLOW DEPTH RATIO	(12:1 MAX)	3.33	3.08	5.00	4.44
d ₅₀ STONE SIZE	(IN)	--	--	--	--
A (CROSS-SECTIONAL AREA)	(SQ. FT.)	2.64	2.99	1.44	1.71
R (HYDRAULIC RADIUS)		0.38	0.40	0.272	0.299
S (BED SLOPE) ³	(FT/FT)	0.033	0.033	0.032	0.032
S _c (CRITICAL SLOPE)	(FT/FT)	0.033	0.036	0.037	0.053
.7S _c	(FT/FT)	0.023	0.025	0.017	0.025
1.3S _c	(FT/FT)	0.043	0.046	0.048	0.069
STABLE FLOW?	(Y/N)	N	Y	N	Y
FREEBOARD BASED ON UNSTABLE FLOW	(FT)	0.15	0.17	0.08	--
FREEBOARD BASED ON STABLE FLOW	(FT)	--	--	--	0.11
MINIMUM REQUIRED FREEBOARD ⁴	(FT)	0.5	0.5	0.5	0.5
DESIGN METHOD FOR PROTECTIVE LINING ⁵ PERMISSIBLE VELOCITY (V) OR SHEAR STRESS (S)		V	V	V	V

1. Use 1.6 for Temporary Channels; 2.25 for Temporary Channels in Special Protection (HQ or EV) Watersheds; 2.75 for Permanent Channels. For Rational Method, enter "N/A" and attach E&S Worksheets 9 and 10. For TR-55 enter "N/A" and attach appropriate Worksheets.
 2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
 3. Slopes may not be averaged.
 4. Minimum Freeboard is 0.5 ft. or ¼ Total Channel Depth, whichever is greater
 5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.
- * Due to PADEP Stormwater BMP design requirements for vegetated swales, the bottom width:flow depth ratio is above 12:1 max for each scenario for the 10-yr storm event.

CHANNEL OR CHANNEL SECTION	CC #3	DC #1	DC #1
TEMPORARY OR PERMANENT? (T OR P)	P	P	P
DESIGN STORM (2, 5, OR 10 YR)	10 YR	10 YR	10 YR
ACRES (AC)	1.84	1.16	1.16
MULTIPLIER (1.6, 2.25, or 2.75) ¹	N/A	N/A	N/A
Q _r (REQUIRED CAPACITY) (CFS)	8.21	1.43	1.43
Q (CALCULATED AT FLOW DEPTH d) (CFS)	10.07	2.02	1.82
PROTECTIVE LINING ²	R-3 Riprap	ECM (SC250)	Vegetated ECM
n (MANNING'S COEFFICIENT) ²	0.039	0.040	0.059
V _a (ALLOWABLE VELOCITY) (FPS)	6.5	9.5	15
V (CALCULATED AT FLOW DEPTH d) (FPS)	3.5	2.1	1.5
τ _a (MAX ALLOWABLE SHEAR STRESS) (LB/FT ²)	1.0	2.5	8.0
τ _d (CALC'D SHEAR STRESS AT FLOW DEPTH d) (LB/FT ²)	1.0	0.5	0.5
CHANNEL BOTTOM WIDTH (FT)	2	2	2
CHANNEL SIDE SLOPES (H:V)	2	4	4
D (TOTAL DEPTH) (FT)	6.00	2.00	2.00
CHANNEL TOP WIDTH @ D (FT)	26.00	18.00	18.00
d (CALCULATED FLOW DEPTH) (FT)	0.80	0.30	0.35
CHANNEL TOP WIDTH @ FLOW DEPTH d (FT)	5.20	4.40	4.80
BOTTOM WIDTH: FLOW DEPTH RATIO (12:1 MAX)	2.50	6.67	5.71
d ₅₀ STONE SIZE (IN)	--	--	--
A (CROSS-SECTIONAL AREA) (SQ. FT.)	2.88	0.96	1.19
R (HYDRAULIC RADIUS)	0.516	0.215	0.244
S (BED SLOPE) ³ (FT/FT)	0.020	0.025	0.025
S _c (CRITICAL SLOPE) (FT/FT)	0.029	0.040	0.085
.7S _c (FT/FT)	0.020	0.028	0.060
1.3S _c (FT/FT)	0.038	0.051	0.111
STABLE FLOW? (Y/N)	Y	Y	Y
FREEBOARD BASED ON UNSTABLE FLOW (FT)	--	--	--
FREEBOARD BASED ON STABLE FLOW (FT)	0.20	0.07	0.09
MINIMUM REQUIRED FREEBOARD ⁴ (FT)	0.5	0.5	0.5
DESIGN METHOD FOR PROTECTIVE LINING ⁵ PERMISSIBLE VELOCITY (V) OR SHEAR STRESS (S)	V	V	V

HYDROCAD CHANNEL PEAK FLOW CALCULATIONS



CC#1



CC#2



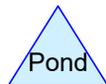
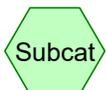
CC#3



DC#1



Culvert #1



Routing Diagram for Station 607-channel_R3

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.005	89	Gravel roads, HSG C (1S, 2S, 3S)
0.776	71	Meadow, non-grazed, HSG C (1S, 2S, 3S, 4S)
0.935	78	Meadow, non-grazed, HSG D (4S)
0.059	73	Woods, Fair, HSG C (4S)
0.059	79	Woods, Fair, HSG D (4S)
4.834	84	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
3.840	HSG C	1S, 2S, 3S, 4S
0.994	HSG D	4S
0.000	Other	
4.834		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	3.005	0.000	0.000	3.005	Gravel roads	1S, 2S, 3S
0.000	0.000	0.776	0.935	0.000	1.711	Meadow, non-grazed	1S, 2S, 3S, 4S
0.000	0.000	0.059	0.059	0.000	0.118	Woods, Fair	4S
0.000	0.000	3.840	0.994	0.000	4.834	TOTAL AREA	

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Compressor Station 607
Type II 24-hr 10yr Rainfall=4.15"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: CC#1 Runoff Area=1.234 ac 0.00% Impervious Runoff Depth>2.59"
Flow Length=477' Tc=3.1 min CN=87 Runoff=6.34 cfs 0.266 af

Subcatchment 2S: CC#2 Runoff Area=26,176 sf 0.00% Impervious Runoff Depth>2.32"
Flow Length=814' Tc=6.5 min CN=84 Runoff=2.54 cfs 0.116 af

Subcatchment 3S: CC#3 Runoff Area=1.841 ac 0.00% Impervious Runoff Depth>2.50"
Flow Length=723' Tc=6.3 min CN=86 Runoff=8.21 cfs 0.383 af

Subcatchment 4S: DC#1 Runoff Area=1.158 ac 0.00% Impervious Runoff Depth>1.74"
Flow Length=1,211' Tc=45.7 min CN=77 Runoff=1.43 cfs 0.168 af

Total Runoff Area = 4.834 ac Runoff Volume = 0.934 af Average Runoff Depth = 2.32"
100.00% Pervious = 4.834 ac 0.00% Impervious = 0.000 ac

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Compressor Station 607
Type II 24-hr 10yr Rainfall=4.15"

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Summary for Subcatchment 1S: CC#1

Runoff = 6.34 cfs @ 11.93 hrs, Volume= 0.266 af, Depth> 2.59"

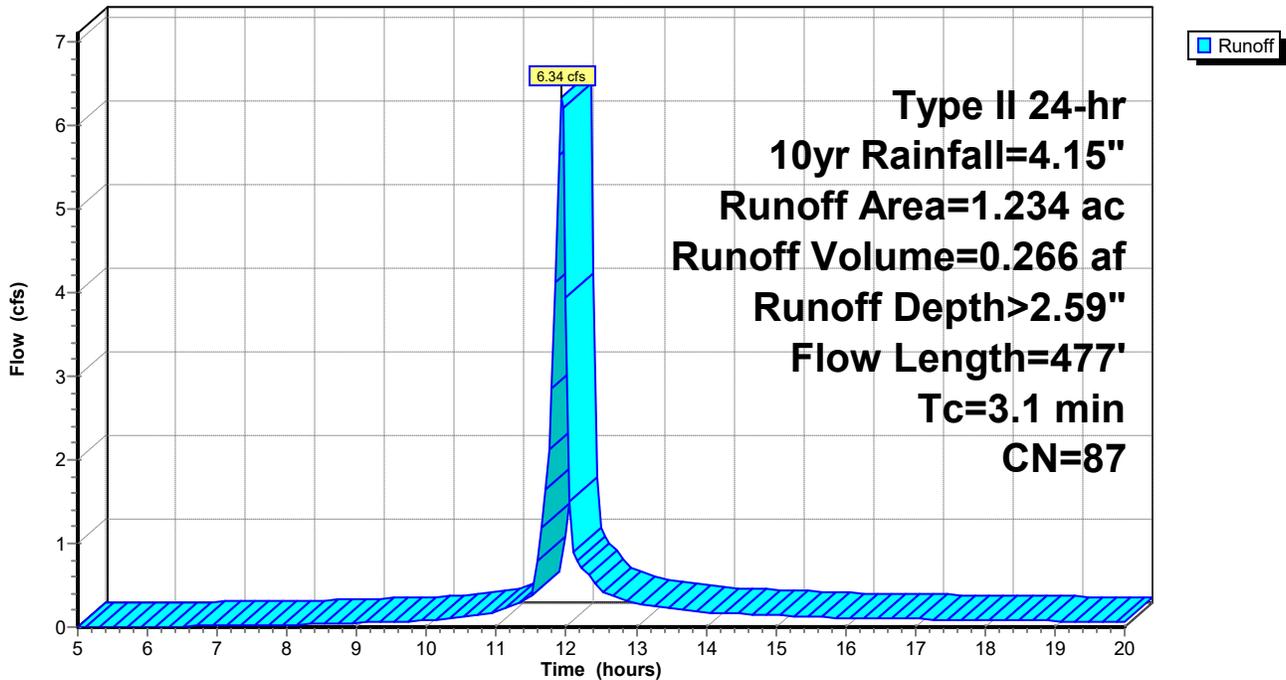
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10yr Rainfall=4.15"

Area (ac)	CN	Description
0.156	71	Meadow, non-grazed, HSG C
1.078	89	Gravel roads, HSG C
1.234	87	Weighted Average
1.234		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	166	0.0079	1.80		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.6	311	0.0325	3.25	8.45	Channel Flow, Area= 2.6 sf Perim= 6.9' r= 0.38' n= 0.043
3.1	477	Total			

Subcatchment 1S: CC#1

Hydrograph



Station 607-channel_R3

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Compressor Station 607

Type II 24-hr 10yr Rainfall=4.15"

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Hydrograph for Subcatchment 1S: CC#1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.26	0.00	0.00	17.75	3.80	2.46	0.09
5.25	0.28	0.00	0.00	18.00	3.82	2.47	0.09
5.50	0.30	0.00	0.00	18.25	3.84	2.49	0.08
5.75	0.31	0.00	0.00	18.50	3.86	2.51	0.08
6.00	0.33	0.00	0.00	18.75	3.88	2.52	0.08
6.25	0.35	0.00	0.01	19.00	3.89	2.54	0.07
6.50	0.37	0.00	0.01	19.25	3.91	2.55	0.07
6.75	0.39	0.01	0.01	19.50	3.92	2.57	0.07
7.00	0.41	0.01	0.01	19.75	3.94	2.58	0.06
7.25	0.43	0.01	0.02	20.00	3.95	2.59	0.06
7.50	0.45	0.01	0.02				
7.75	0.48	0.02	0.02				
8.00	0.50	0.02	0.02				
8.25	0.52	0.03	0.03				
8.50	0.55	0.04	0.04				
8.75	0.58	0.04	0.04				
9.00	0.61	0.05	0.05				
9.25	0.64	0.06	0.06				
9.50	0.68	0.08	0.06				
9.75	0.71	0.09	0.07				
10.00	0.75	0.11	0.08				
10.25	0.80	0.12	0.10				
10.50	0.85	0.15	0.12				
10.75	0.91	0.18	0.15				
11.00	0.98	0.21	0.19				
11.25	1.06	0.26	0.26				
11.50	1.17	0.32	0.35				
11.75	1.61	0.61	2.13				
12.00	2.75	1.52	3.93				
12.25	2.93	1.68	0.69				
12.50	3.05	1.78	0.44				
12.75	3.13	1.86	0.35				
13.00	3.20	1.92	0.29				
13.25	3.26	1.97	0.25				
13.50	3.32	2.02	0.22				
13.75	3.36	2.06	0.20				
14.00	3.40	2.10	0.18				
14.25	3.44	2.13	0.16				
14.50	3.48	2.16	0.16				
14.75	3.51	2.19	0.15				
15.00	3.54	2.22	0.14				
15.25	3.57	2.25	0.13				
15.50	3.60	2.27	0.13				
15.75	3.63	2.30	0.12				
16.00	3.65	2.32	0.11				
16.25	3.68	2.34	0.11				
16.50	3.70	2.36	0.10				
16.75	3.72	2.38	0.10				
17.00	3.74	2.40	0.10				
17.25	3.76	2.42	0.09				
17.50	3.78	2.44	0.09				

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Compressor Station 607
Type II 24-hr 10yr Rainfall=4.15"

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Summary for Subcatchment 2S: CC#2

Runoff = 2.54 cfs @ 11.98 hrs, Volume= 0.116 af, Depth> 2.32"

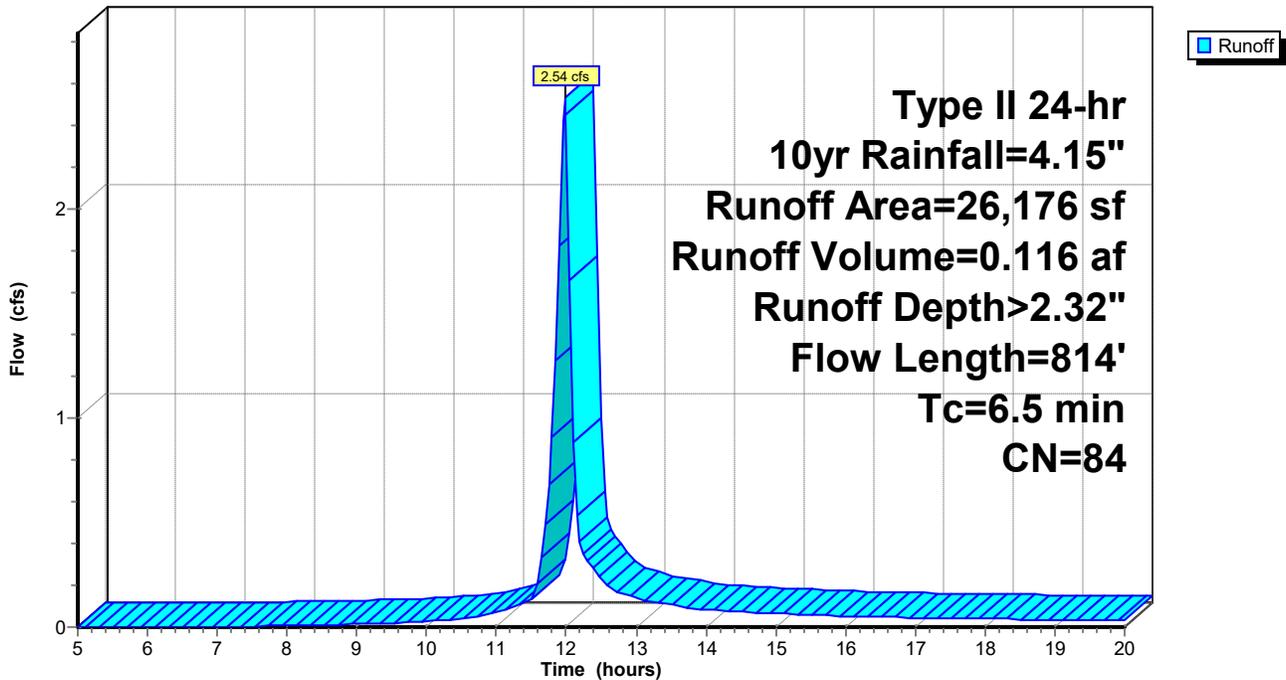
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10yr Rainfall=4.15"

Area (sf)	CN	Description
7,071	71	Meadow, non-grazed, HSG C
19,105	89	Gravel roads, HSG C
26,176	84	Weighted Average
26,176		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	414	0.0096	1.99		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.0	400	0.0324	2.21	3.76	Channel Flow, Area= 1.7 sf Perim= 5.7' r= 0.30' n= 0.054
6.5	814	Total			

Subcatchment 2S: CC#2

Hydrograph



Station 607-channel_R3

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Compressor Station 607

Type II 24-hr 10yr Rainfall=4.15"

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Hydrograph for Subcatchment 2S: CC#2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.26	0.00	0.00	17.75	3.80	2.20	0.04
5.25	0.28	0.00	0.00	18.00	3.82	2.22	0.04
5.50	0.30	0.00	0.00	18.25	3.84	2.23	0.04
5.75	0.31	0.00	0.00	18.50	3.86	2.25	0.04
6.00	0.33	0.00	0.00	18.75	3.88	2.26	0.04
6.25	0.35	0.00	0.00	19.00	3.89	2.28	0.03
6.50	0.37	0.00	0.00	19.25	3.91	2.29	0.03
6.75	0.39	0.00	0.00	19.50	3.92	2.30	0.03
7.00	0.41	0.00	0.00	19.75	3.94	2.32	0.03
7.25	0.43	0.00	0.00	20.00	3.95	2.33	0.03
7.50	0.45	0.00	0.00				
7.75	0.48	0.00	0.00				
8.00	0.50	0.01	0.01				
8.25	0.52	0.01	0.01				
8.50	0.55	0.01	0.01				
8.75	0.58	0.02	0.01				
9.00	0.61	0.02	0.02				
9.25	0.64	0.03	0.02				
9.50	0.68	0.04	0.02				
9.75	0.71	0.05	0.02				
10.00	0.75	0.06	0.03				
10.25	0.80	0.07	0.03				
10.50	0.85	0.09	0.04				
10.75	0.91	0.11	0.05				
11.00	0.98	0.14	0.07				
11.25	1.06	0.18	0.10				
11.50	1.17	0.23	0.13				
11.75	1.61	0.48	0.68				
12.00	2.75	1.31	2.45				
12.25	2.93	1.46	0.35				
12.50	3.05	1.56	0.23				
12.75	3.13	1.63	0.17				
13.00	3.20	1.69	0.14				
13.25	3.26	1.74	0.12				
13.50	3.32	1.78	0.11				
13.75	3.36	1.82	0.09				
14.00	3.40	1.85	0.08				
14.25	3.44	1.89	0.08				
14.50	3.48	1.92	0.07				
14.75	3.51	1.95	0.07				
15.00	3.54	1.97	0.07				
15.25	3.57	2.00	0.06				
15.50	3.60	2.02	0.06				
15.75	3.63	2.05	0.06				
16.00	3.65	2.07	0.05				
16.25	3.68	2.09	0.05				
16.50	3.70	2.11	0.05				
16.75	3.72	2.13	0.05				
17.00	3.74	2.15	0.05				
17.25	3.76	2.16	0.04				
17.50	3.78	2.18	0.04				

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Type II 24-hr 10yr Rainfall=4.15"

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Summary for Subcatchment 3S: CC#3

Runoff = 8.21 cfs @ 11.97 hrs, Volume= 0.383 af, Depth> 2.50"

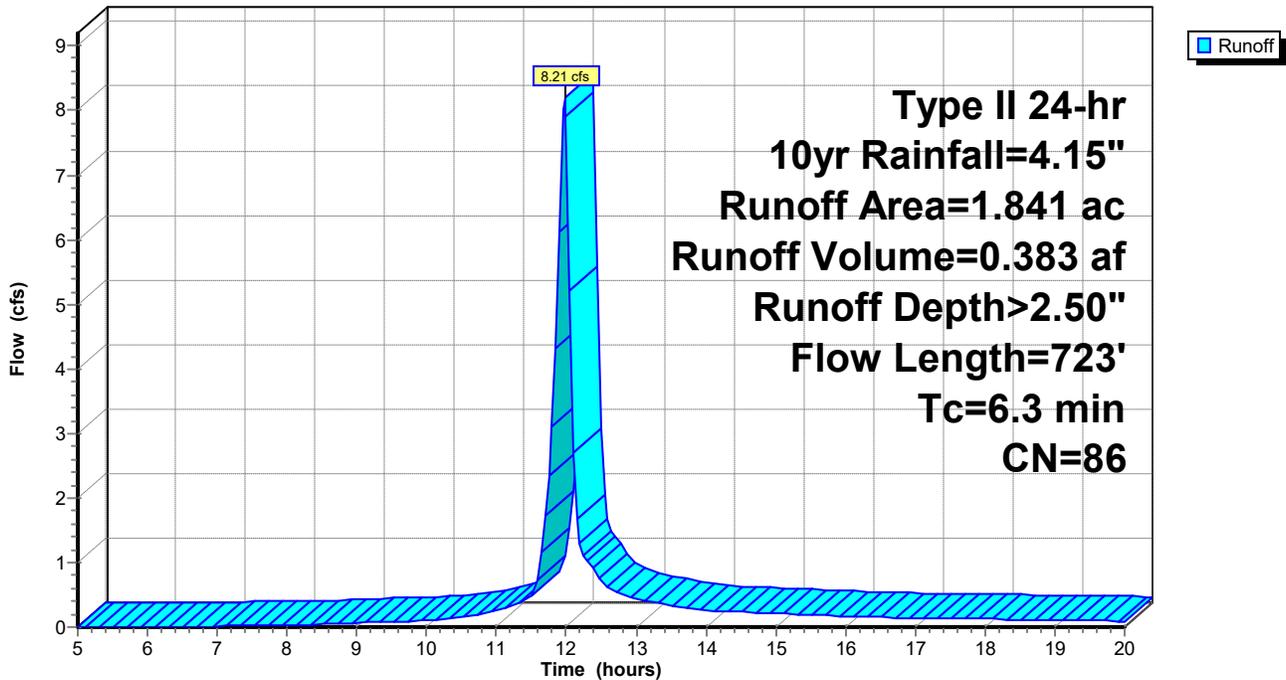
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10yr Rainfall=4.15"

Area (ac)	CN	Description
1.488	89	Gravel roads, HSG C
0.353	71	Meadow, non-grazed, HSG C
1.841	86	Weighted Average
1.841		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	166	0.0096	1.99		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.9	557	0.0200	1.88	3.20	Channel Flow, Area= 1.7 sf Perim= 5.2' r= 0.33' n= 0.053
6.3	723	Total			

Subcatchment 3S: CC#3

Hydrograph



Station 607-channel_R3

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Type II 24-hr 10yr Rainfall=4.15"

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Hydrograph for Subcatchment 3S: CC#3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.26	0.00	0.00	17.75	3.80	2.37	0.13
5.25	0.28	0.00	0.00	18.00	3.82	2.39	0.13
5.50	0.30	0.00	0.00	18.25	3.84	2.40	0.12
5.75	0.31	0.00	0.00	18.50	3.86	2.42	0.12
6.00	0.33	0.00	0.00	18.75	3.88	2.43	0.11
6.25	0.35	0.00	0.00	19.00	3.89	2.45	0.11
6.50	0.37	0.00	0.01	19.25	3.91	2.46	0.11
6.75	0.39	0.00	0.01	19.50	3.92	2.48	0.10
7.00	0.41	0.00	0.01	19.75	3.94	2.49	0.10
7.25	0.43	0.01	0.02	20.00	3.95	2.50	0.09
7.50	0.45	0.01	0.02				
7.75	0.48	0.01	0.03				
8.00	0.50	0.02	0.03				
8.25	0.52	0.02	0.04				
8.50	0.55	0.03	0.04				
8.75	0.58	0.03	0.05				
9.00	0.61	0.04	0.06				
9.25	0.64	0.05	0.07				
9.50	0.68	0.06	0.08				
9.75	0.71	0.07	0.09				
10.00	0.75	0.09	0.11				
10.25	0.80	0.11	0.13				
10.50	0.85	0.13	0.16				
10.75	0.91	0.15	0.20				
11.00	0.98	0.19	0.25				
11.25	1.06	0.23	0.34				
11.50	1.17	0.29	0.47				
11.75	1.61	0.56	2.36				
12.00	2.75	1.45	7.91				
12.25	2.93	1.60	1.12				
12.50	3.05	1.71	0.72				
12.75	3.13	1.78	0.53				
13.00	3.20	1.84	0.44				
13.25	3.26	1.89	0.38				
13.50	3.32	1.94	0.34				
13.75	3.36	1.98	0.30				
14.00	3.40	2.01	0.26				
14.25	3.44	2.05	0.24				
14.50	3.48	2.08	0.23				
14.75	3.51	2.11	0.22				
15.00	3.54	2.14	0.21				
15.25	3.57	2.16	0.20				
15.50	3.60	2.19	0.19				
15.75	3.63	2.21	0.17				
16.00	3.65	2.23	0.16				
16.25	3.68	2.25	0.16				
16.50	3.70	2.27	0.15				
16.75	3.72	2.29	0.15				
17.00	3.74	2.31	0.14				
17.25	3.76	2.33	0.14				
17.50	3.78	2.35	0.13				

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Type II 24-hr 10yr Rainfall=4.15"

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Summary for Subcatchment 4S: DC#1

Runoff = 1.43 cfs @ 12.45 hrs, Volume= 0.168 af, Depth> 1.74"

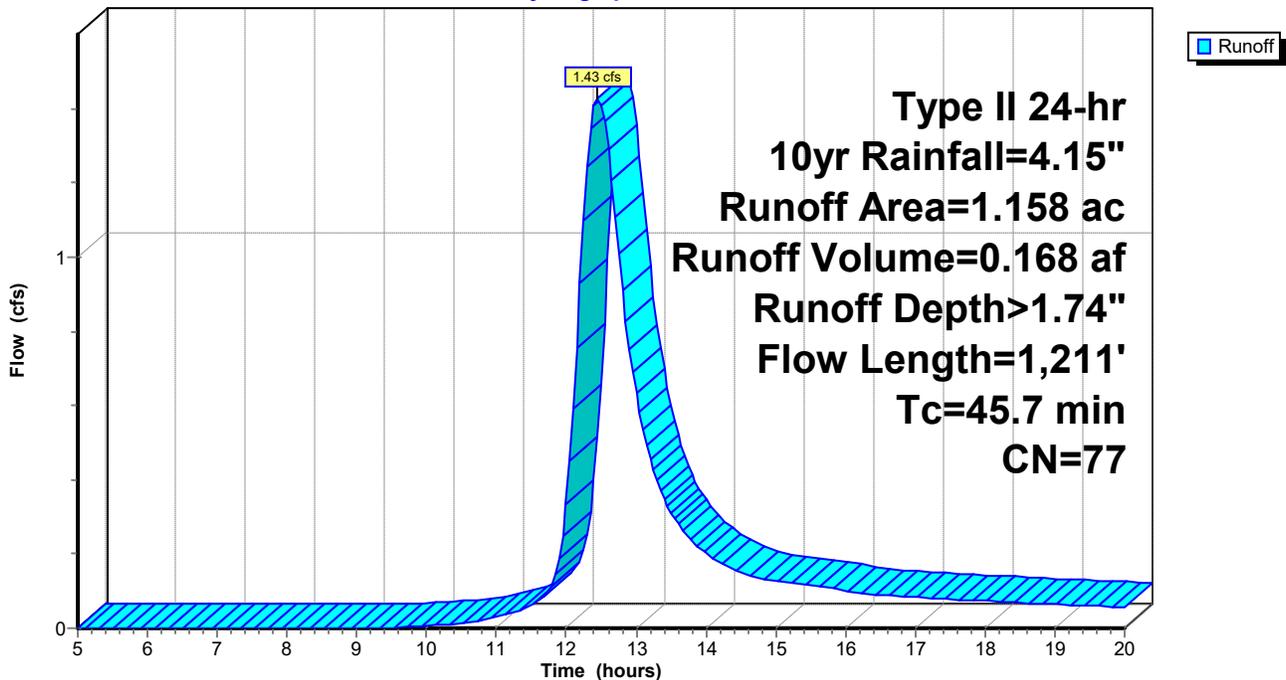
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10yr Rainfall=4.15"

Area (ac)	CN	Description
0.059	73	Woods, Fair, HSG C
0.059	79	Woods, Fair, HSG D
0.105	71	Meadow, non-grazed, HSG C
0.935	78	Meadow, non-grazed, HSG D
1.158	77	Weighted Average
1.158		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.8	179	0.0254	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 2.88"
7.7	489	0.0227	1.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.2	543	0.0240	1.73	2.08	Channel Flow, Area= 1.2 sf Perim= 4.9' r= 0.24' n= 0.052
45.7	1,211	Total			

Subcatchment 4S: DC#1

Hydrograph



Station 607-channel_R3

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Compressor Station 607
Type II 24-hr 10yr Rainfall=4.15"

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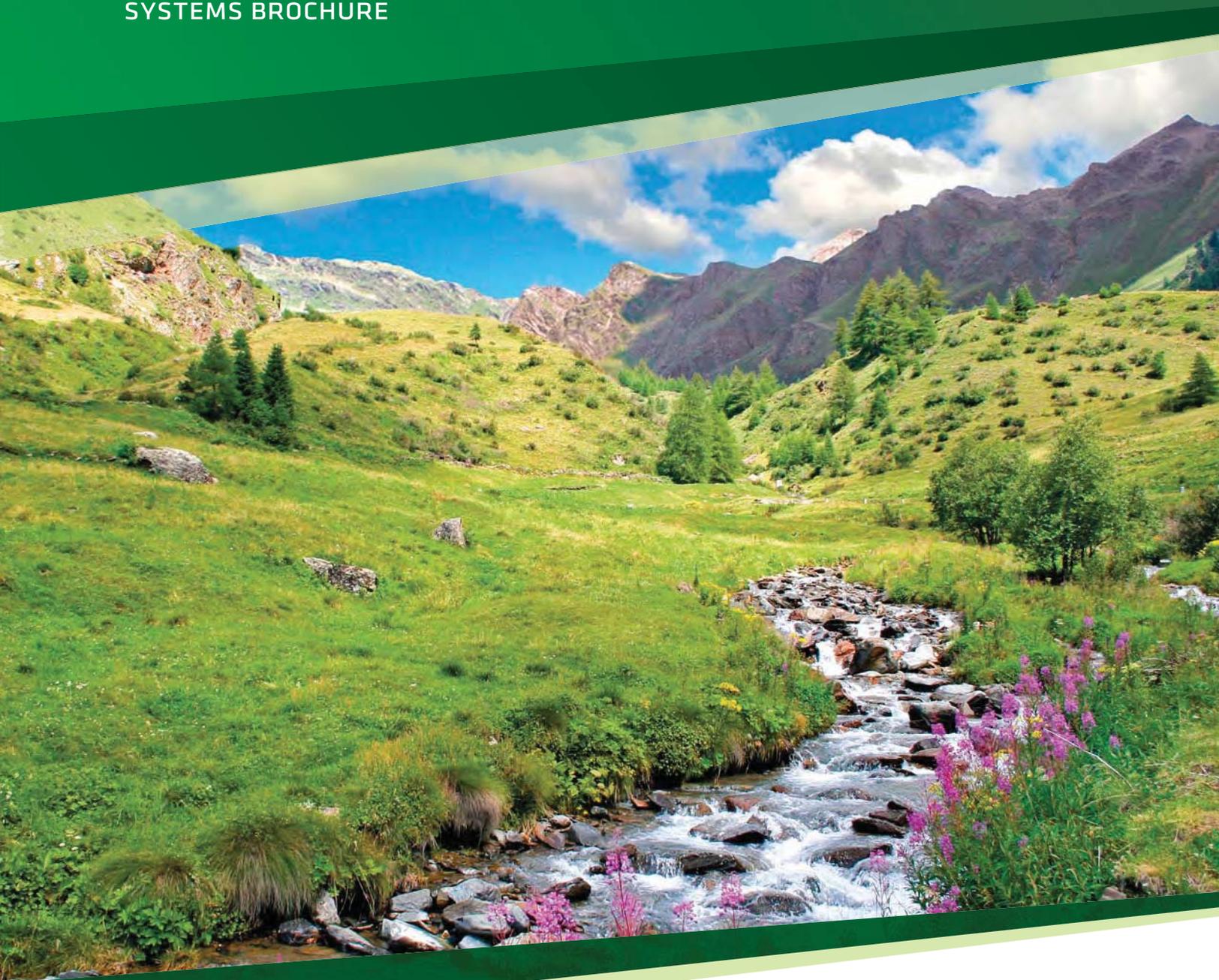
Hydrograph for Subcatchment 4S: DC#1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.26	0.00	0.00	17.75	3.80	1.66	0.08
5.25	0.28	0.00	0.00	18.00	3.82	1.67	0.07
5.50	0.30	0.00	0.00	18.25	3.84	1.69	0.07
5.75	0.31	0.00	0.00	18.50	3.86	1.70	0.07
6.00	0.33	0.00	0.00	18.75	3.88	1.72	0.07
6.25	0.35	0.00	0.00	19.00	3.89	1.73	0.06
6.50	0.37	0.00	0.00	19.25	3.91	1.74	0.06
6.75	0.39	0.00	0.00	19.50	3.92	1.75	0.06
7.00	0.41	0.00	0.00	19.75	3.94	1.76	0.06
7.25	0.43	0.00	0.00	20.00	3.95	1.77	0.06
7.50	0.45	0.00	0.00				
7.75	0.48	0.00	0.00				
8.00	0.50	0.00	0.00				
8.25	0.52	0.00	0.00				
8.50	0.55	0.00	0.00				
8.75	0.58	0.00	0.00				
9.00	0.61	0.00	0.00				
9.25	0.64	0.00	0.00				
9.50	0.68	0.00	0.00				
9.75	0.71	0.00	0.00				
10.00	0.75	0.01	0.01				
10.25	0.80	0.01	0.01				
10.50	0.85	0.02	0.01				
10.75	0.91	0.03	0.02				
11.00	0.98	0.04	0.03				
11.25	1.06	0.06	0.04				
11.50	1.17	0.09	0.06				
11.75	1.61	0.25	0.10				
12.00	2.75	0.90	0.33				
12.25	2.93	1.02	1.10				
12.50	3.05	1.11	1.41				
12.75	3.13	1.16	1.01				
13.00	3.20	1.21	0.63				
13.25	3.26	1.26	0.43				
13.50	3.32	1.30	0.31				
13.75	3.36	1.33	0.24				
14.00	3.40	1.36	0.20				
14.25	3.44	1.39	0.17				
14.50	3.48	1.41	0.15				
14.75	3.51	1.44	0.14				
15.00	3.54	1.46	0.13				
15.25	3.57	1.48	0.12				
15.50	3.60	1.51	0.11				
15.75	3.63	1.53	0.11				
16.00	3.65	1.54	0.10				
16.25	3.68	1.56	0.10				
16.50	3.70	1.58	0.09				
16.75	3.72	1.60	0.09				
17.00	3.74	1.61	0.08				
17.25	3.76	1.63	0.08				
17.50	3.78	1.64	0.08				

**CHANNEL LINING-
MANUFACTURER'S SPECIFICATIONS**

ROLLED EROSION CONTROL

SYSTEMS BROCHURE





When It Rains (or Blows, Flows or Washes), It Pours

Erosion not only wears away slopes, degrades shorelines and steals precious topsoil, it can also threaten water sources, damage man-made structures, reconfigure landscapes and disrupt wildlife habitats. Add the stiff penalties at stake for violating Environmental Protection Agency (EPA) or local enforcement agency regulations, and the costs of erosion can quickly climb out of control.

WE ROLL AGAINST THE FLOW

Tensar International Corporation (Tensar) is the world's leading provider of performance-guaranteed erosion control solutions. For more than 25 years, the Tensar® North American Green® line of erosion and sediment control products has kept our customers on solid ground.

The RollMax™ Systems' family of Rolled Erosion Control Products (RECPs) is solid evidence of Tensar's ongoing investment in innovation. Our short-term and long-term erosion control blankets and turf reinforcement mats keep you one step ahead of just about any erosion challenge.

ALL THE HELP YOU NEED

Of all the RECP manufacturers out there, none can match Tensar's customer service and technical knowhow. Our support team will assist with project design and product

specification or, if you'd rather do it yourself, use our Erosion Control Materials Design Software (ECMDS®) (the industry's first) for selecting material, and planning your project.

Tensar products are sold exclusively through nearly 200 Tensar Erosion Control authorized distributors worldwide. The Tensar Erosion Solutions Specialist program certifies our distributors and their sales representatives to design erosion control measures that comply with the EPA's National Pollutant Discharge Elimination System (NPDES) and other industry regulations.

Tensar is a proud member of the Erosion Control Technology Council (ECTC) and the International Erosion Control Association (IECA).

NEW NAME - SAME GREAT PERFORMANCE AND SERVICE

Tensar International Corporation acquired North American Green (NAG) in 2004 to enhance our position as the premier provider of technology-driven site solutions. We are proud to continue offering the same NAG level of service, quality and high-performance erosion control products under the name of Tensar.



Site erosion can be costly, with the RollMax Systems full line of rolled erosion control products we can keep you in compliance.



For more than 25 years, our Tensar North American Green line of products has kept our customers on solid ground.



Applications Welcome

For nearly every erosion application, there's a RollMax™ Systems solution. Permanent turf reinforcement mats provide long-term protection and vegetation establishment; temporary Erosion Control Blankets (ECBs) give immediate protection and assist with vegetation establishment before degrading naturally. Tensar's extensive selection of RollMax products almost guarantees you'll find the answer to your erosion problems.

Typical erosion control applications include these and many more:

- ▶ Highway and other DOT projects
- ▶ Commercial and residential developments
- ▶ Shorelines and waterways
- ▶ Golf course turf management
- ▶ Oil and gas pipeline restoration
- ▶ Mine and fire reclamation
- ▶ Military base construction

AND SPEAKING OF GUARANTEES . . .

Tensar's Ultimate Assurance Guarantee is the most comprehensive in the industry. It says if any properly specified and installed Tensar® North American Green® rolled erosion control product designed by a qualified engineer or Tensar technical representative in accordance with our Erosion Control Materials Design Software (ECMDS®) fails to perform under the conditions in the Guarantee, then we will replace the failed product with our next higher-performance RECP product, along with the cost of seed, fertilizer, topsoil and other amendments lost due to such product failure. Our Guarantee warrants in accordance with its terms and conditions all registered projects designed with the latest version of our ECMDS and properly installed.

Tensar turf reinforcement mats are also guaranteed to reinforce vegetation for five years after installation, and the functional longevity of these products' permanent structures is warranted for a minimum of 10 years after installation, subject to the terms and conditions set forth in the Guarantee.



From challenging roadway improvements to concentrated flow channels, there is a RollMax product ready to handle the job – and it's guaranteed.

Permanent RollMax™ Solutions



Back in the day, rock riprap, articulated concrete blocks and poured concrete were the only way to deal with erosion in high-flow channels, on shorelines and other areas where water and/or wind exceed the shear limits of unreinforced vegetation.

Not anymore. Tensar's permanent Turf Reinforcement Mats (TRMs) use 100% synthetic components or a composite of synthetic and natural materials for long-term erosion protection and vegetation establishment. Whether compared to rock riprap or concrete, the RollMax™ Systems' permanent TRMs offer a number of significant advantages:

- ▶ Prevent loss of precious topsoil to wind and water erosion
- ▶ Permanently reinforce vegetation root and stem structures
- ▶ Provide excellent conditions for quick, healthy vegetation growth
- ▶ Stabilize slopes from erosion to keep roadways safe and clean
- ▶ Protect water quality in lakes, rivers and streams
- ▶ Protect dormant seeding during winter months
- ▶ Easily conform to landscape features
- ▶ Lightweight for easy handling and transportation



The TRMs easily conform to various landscape features to prevent the loss of precious topsoil.

VMAX® COMPOSITE TURF REINFORCEMENT MATS

VMax® C-TRMs combine three-dimensional matting with fiber matrix material for permanent erosion control on severe slopes, spillways, stream banks, shorelines and in high- to extreme-flow channels. These extensively tested products provide maximum performance through all three phases of reinforced vegetative lining development: unvegetated, establishment, and maturity. Incorporating the best performance features of temporary and permanent Tensar erosion control products, VMax C-TRMs deliver these tangible benefits:

- ▶ Surface-applied for the highest level of immediate soil protection
- ▶ Less than one third of the installed cost of rock or concrete
- ▶ No heavy equipment needed to install
- ▶ More attractive and effective "Green" alternative than rock riprap or concrete
- ▶ Exceeds FHWA and ECTC standards for TRMs
- ▶ An EPA Best Management Practice (BMP) for National Pollutant Discharge Elimination System (NPDES) regulations
- ▶ No threat to pedestrians or automobiles when used near travel routes
- ▶ Naturally filters runoff water



The RollMax TRMs are installed in a one-step operation directly over the prepared seedbed saving time and money and ensuring the highest level of erosion control and vegetation reinforcement.



VMax® P550® Permanent TRM

Our top of the line P550® TRM has a polypropylene fiber matrix augmenting the permanent netting structure with permanent mulching and erosion control performance. Unvegetated, the P550 TRM reduces soil loss to less than 0.5 in. (12.7 mm) under shear stress up to 4.0 lbs/ft² (191 Pa). The ultra-strong structure drives the vegetated shear resistance up to 14 lbs/ft² (672 Pa), establishing a new maximum for vegetation reinforcement. The P550 TRM may be used as an alternative for poured concrete or articulated concrete blocks in extreme erosion control projects.

VMax® C350® Permanent TRM

A 100% coconut fiber matrix supplements the C350's permanent three-dimensional netting structure with initial mulching and erosion control performance for up to 36 months. Unvegetated, the C350® TRM reduces soil loss to less than 0.5 in. (12.7 mm) under shear stress up to 3.2 lbs/ft² (153 Pa) and boosts permanent vegetation performance up to 12 lbs/ft² (576 Pa). This environmentally friendly alternative to 30 in. (76 cm) or larger rock riprap is ideal for severe erosion control projects.

VMax® SC250® Permanent TRM

The SC250® permanent TRM has a 70% straw/30% coconut fiber matrix to enhance initial mulching and erosion control performance for up to 24 months. Unvegetated, SC250 TRMs reduce soil loss to less than 0.5 in. (12.7 mm) under shear stress up to 3.0 lbs/ft² and increases permanent vegetation performance up to 10 lbs/ft² (480 Pa) for a green alternative to rock riprap.

ERONET™ PERMANENT EROSION CONTROL BLANKETS

The EroNet™ Permanent ECB provides immediate erosion protection and vegetation establishment assistance until vegetation roots and stems mature.

EroNet™ P300® Permanent Erosion Control Blankets

The P300® permanent erosion control blanket consists of UV-stabilized polypropylene fiber stitched between heavy-weight UV-stabilized polypropylene top and bottom nets. These mats reduce soil loss and protect vegetation from being washed away or uprooted, even under high stress. Unvegetated, they reduce soil loss to less than 0.5 in. (12.7 mm) under shear stress up to 3.0 lbs/ft² (144 Pa), and protect vegetation from being washed away or uprooted when exposed to shear stresses up to 8 lbs/ft² (383 Pa).



To boost performance of the VMax turf reinforcement mats in critical applications, combine with our ShoreMax® flexible transition mat to create a system that can dramatically elevate the permissible shear stress and velocity protection beyond many hard armor solutions.



VMax Mats are perfect for pipe outlets, channel bottoms, shoreline transition zones, and other areas subjected to highly turbulent water flows.

Temporary RollMax™ Solutions



Erosion control has never been so simple yet effective. Tensar's RollMax™ temporary Erosion Control Blankets (ECBs) provide immediate erosion protection and vegetation establishment assistance, then degrade once the vegetation's root and stem systems are mature enough to stabilize the soil.

Our high-quality temporary solutions are available in varying functional longevities and materials:

- ▶ Short-term photodegradable blankets with a functional longevity of 45 days up to 12 months
- ▶ Extended-term and long-term photodegradable blankets for protection up to 36 months
- ▶ Short-term biodegradable blankets for protection up to 12 months
- ▶ Extended-term and long-term biodegradable products for protection and mulching from 18 to 24 months

ERONET™ EROSION CONTROL BLANKETS

Tensar's EroNet™ ECBs incorporate photodegradable nettings, which means they are broken down by the ultraviolet rays in sunlight. These temporary products can be used in a variety of scenarios, including moderate to steep slopes, medium- to high-flow channels, shorelines and other areas needing protection until permanent vegetation establishment.

EroNet™ C125® Long-Term Photodegradable Double-Net Coconut Blanket

The C125® ECB is made of 100% coconut fiber stitched between heavyweight UV-stabilized polypropylene nets. It offers excellent durability, erosion control and longevity for severe slopes, steep embankments, high-flow channels and other areas where vegetation may take up to 36 months to grow in.



The EroNet temporary ECBs are designed to provide immediate erosion protection and vegetation establishment assistance, and then degrade after the vegetation is mature enough to permanently stabilize the underlying soil. Both short-term and extended-term ECBs are available.



EroNet™ SC150® Extended-Term Photodegradable Double-Net Straw/Coconut Blanket

With a layer of 70% straw and 30% coconut fiber stitched between a heavyweight UV-stabilized polypropylene top net and a lightweight photodegradable polypropylene bottom net, the SC150® ECB has increased durability, erosion control capabilities and longevity. It is suitable for steeper slopes, medium-flow channels and other areas where it may take vegetation up to 24 months to grow in.

EroNet™ S150® Short-Term Photodegradable Double-Net Straw Blanket

The S150 ECB is made with a 100% straw fiber matrix stitched between lightweight photodegradable polypropylene top and bottom nets. The S150 ECB's double-net construction has greater structural integrity than single net blankets for use on steeper slopes and in channels with moderate water flow. It provides erosion protection and mulching for up to 12 months.

EroNet™ DS150™ Ultra Short-Term Photodegradable Double-Net Straw Blanket

The DS150™ ECB is suitable for high maintenance areas where close mowing will occur soon after installation. Special additives in the thread and top and bottom net ensure it degrades in adequate sunlight within 60 days.

EroNet™ S75® Short-Term Photodegradable Single-Net Straw Blanket

The S75® ECB protects and mulches moderate slopes and low-flow channels in low maintenance areas for up to 12 months. It is constructed of 100% straw fiber stitched with degradable thread to a lightweight photodegradable polypropylene top net.

EroNet™ DS75™ Ultra Short-Term Photodegradable Single-Net Straw Blanket

Designed for high maintenance areas where close mowing will occur soon after installation, the DS75™ ECB degrades within 45 days because of special additives in the thread and top net that facilitate rapid breakdown in adequate sunlight.



Every site has its own unique characteristics and challenges. EroNet Erosion Control Blankets are available in varying longevities to suit a variety of scenarios and conditions.



With our Erosion Control Materials Design Software (ECMDS), you can select either short-term, extended-term or long-term EroNet blankets based on your specific design needs.

Temporary RollMax™ Solutions



BIONET® EROSION CONTROL BLANKETS

BioNet® 100% biodegradable ECBs provide effective and all-natural erosion control and vegetation establishment in an environmentally and wildlife friendly manner. All products in the line are made of organic, biodegradable materials perfect for bioengineering applications, environmentally sensitive sites, shaded areas, stream banks and shorelines. Other advantages are:

- ▶ Little to no risk of wildlife entrapment
- ▶ Easy to sprig or plant through
- ▶ High durability, fiber retention and mechanical stability with Leno weave technology
- ▶ Increased water absorption with jute netting vs. polypropylene netting
- ▶ Improved blanket conformance and adherence to soil vs. polypropylene netting
- ▶ Enhanced erosion protection and mulching capabilities vs. polypropylene netting
- ▶ Durable, flexible and 100% biodegradable
- ▶ Lightweight jute netting requires no direct sunlight exposure to initiate degradation



BioNet® C125BN™ Long-Term Biodegradable Double-Net Coconut Blanket

A dense layer of coconut fiber stitched between jute nettings allows the C125BN™ ECB to provide more effective erosion protection and mulch than open weave coir nettings. This product performs in critical applications for up to 24 months.

BioNet® SC150BN™ Extended-Term Biodegradable Double-Net Straw/Coconut Blanket

The SC150BN™ ECB features a layer of 70% straw and 30% coconut fiber stitched between biodegradable jute top and bottom nettings. It provides erosion protection and mulching for up to 18 months in applications requiring extra strength and erosion control properties.

BioNet® S150BN™ Short-Term Biodegradable Double-Net Straw Blanket

The S150BN™ ECB is used for applications requiring greater durability and performance than a single-net biodegradable ECB can provide. Made with a 100% straw fiber matrix stitched between biodegradable jute top and bottom nettings, it offers up to 12 months of erosion protection and mulching action.

BioNet® S75BN™ Short-Term Biodegradable Single-Net Straw Blanket

Consisting of a 100% straw fiber matrix stitched to a biodegradable jute top nettings, the S75BN™ ECB provides better erosion protection and mulching action than conventional open weave jute nettings alone. The S75BN ECB provides up to 12 months of erosion control and vegetation growth support.



Design and Installation Tools

SHIFT, CONTROL, ENTER

Professional guidance on RECP selection, design and project planning is at your fingertips with Tensar's proprietary Erosion Control Materials Design Software (ECMDS®). This web-based program incorporates design methodologies from the Federal Highway Administration and United States Department of Agriculture to analyze your specific site conditions, and make quantified recommendations based on data from controlled laboratory and field research. ECMDS is a must-have if you face tough erosion and sediment control regulations. Best of all, it's free of charge, compliments of Tensar. To learn more and access the software directly, go to www.ECMDS.com.

INSTRUCTIONS INCLUDED

Proper anchoring patterns and rates must be used to achieve optimal results in RECP installation. View our installation guides for stapling patterns. Site specific staple pattern recommendations based on soil type and severity of application may be acquired through our ECMDS.



HOLD ON TIGHT

When under the pressure of severe conditions, even the best erosion control products can't function to their full potential without proper installation and anchoring. Tensar supplies a wide variety of fastener options for nearly every application and soil type.

For use in cohesive soils, wire staples are a cost-effective means to fasten RECPs. Available in 6 in., 8 in., 10 in. and 12 in. lengths, our U-shaped staples can reach to various depths to ensure adequate pull-out resistance. For installation using our handy Pin Pounder installation tool, 6 in. V-top staples or 6 in. circle top pins are available.

Our biodegradable BioStakes® are available in 4 in. and 6 in. lengths and provide an environmentally friendly alternative to metal staples. For an even more durable, deeper reaching yet all-natural anchoring option, our wood EcoStakes® are available in 6 in., 12 in., 18 in. and 24 in. lengths.

For severe applications needing the ultimate, long-lasting hold, try our 12 and 18 in. rebar staples, our 12 in. plastic ShoreMax® stakes, or our complete line of percussion earth anchors. The Tensar earth anchors reach deep into the soil strata to offer enhanced anchoring in the worst conditions. Our variety of earth anchors are designed for durability and holding power under extreme hydraulic stresses and adverse soil conditions (Table 1).

For more information on the RollMax Systems or other systems within the Tensar Erosion Control Solutions, call **800-TENSAR-1** or visit www.tensarcorp.com.

Earth Anchor Options

	Tendon Type (½ in. x 36 in.)	Assembly Description	EA 400		EA 680		
			Fast Install	Economic Anchor	Stainless	Galvanized	
End Piece Options with a PVC Face Plate	Copper Stop Sleeve with Stainless Steel Washer	Manually crimped to the stainless steel cable to secure the face plate.		X	X	X	
	Grip End Piece with Stainless Steel Washer	Three-dimensional, self-securing metal end piece that does not require manual crimping for tendon tensioning.	X	X	X	X	X
	Wedge Grip Piece	Self-securing end piece that installs flush to the face plate. Does not require manual crimping for tendon tensioning.	X		X	X	X
	Aluminum Stop Sleeve with Stainless Steel Washer	Manually crimped to the galvanized cable to secure the face plate.		X		X	X

TABLE 1

The complete line of RollMax™ products offers a variety of options for both short-term and permanent erosion control needs. Reference the RollMax Products Chart below to find the right solution for your next project.



RollMax Product Selection Chart

	TEMPORARY						
	ERONET						BIONET
	DS75	DS150	S75	S150	SC150	C125	S75BN
Longevity	45 days	60 days	12 mo.	12 mo.	24 mo.	36 mo.	12 mo.
Applications	Low Flow Channels 4:1-3:1 Slopes	Moderate Flow Channels 3:1-2:1 Slopes	Low Flow Channels 4:1-3:1 Slopes	Moderate Flow Channels 3:1-2:1 Slopes	Medium Flow Channels 2:1-1:1 Slopes	High-Flow Channels 1:1 and Greater Slopes	Low Flow Channels 4:1-3:1 Slopes
Design Permissible Shear Stress lbs/ft ² (Pa)	Unvegetated 1.55 (74)	Unvegetated 1.75 (84)	Unvegetated 1.55 (74)	Unvegetated 1.75 (84)	Unvegetated 2.00 (96)	Unvegetated 2.25 (108)	Unvegetated 1.60 (76)
Design Permissible Velocity ft/s (m/s)	Unvegetated 5.00 (1.52)	Unvegetated 6.00 (1.52)	Unvegetated 5.00 (1.2)	Unvegetated 6.00 (1.83)	Unvegetated 8.00 (2.44)	Unvegetated 10.00 (3.05)	Unvegetated 5.00 (1.52)
Top Net	Lightweight accelerated photodegradable polypropylene 1.50 lbs/1000 ft ² (0.73 kg/100 m ²) approx wt	Lightweight accelerated photodegradable polypropylene 1.50 lbs/1000 ft ² (0.73 kg/100 m ²) approx wt	Lightweight photodegradable polypropylene 1.50 lbs/1000 ft ² (0.73 kg/100 m ²) approx wt	Lightweight photodegradable polypropylene 1.50 lbs/1000 ft ² (0.73 kg/100 m ²) approx wt	Heavyweight UV-stabilized polypropylene 2.9 lbs/1000 ft ² (1.47 kg/100 m ²) approx wt	Heavyweight UV-stabilized polypropylene 2.9 lbs/1000 ft ² (1.47 kg/100 m ²) approx wt	Leno woven, 100% biodegradable jute fiber 9.30 lbs/1000 ft ² (4.53 kg/100 m ²) approx wt
Center Net	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fiber Matrix	Straw fiber 0.50 lbs/yd ² (0.27 kg/m ²)	Straw fiber 0.50 lbs/yd ² (0.27 kg/m ²)	Straw fiber 0.50 lbs/yd ² (0.27 kg/m ²)	Straw fiber 0.50 lbs/yd ² (0.27 kg/m ²)	Straw/coconut matrix 70% Straw 0.35 lbs/yd ² (0.19 kg/m ²) 30% Coconut 0.15 lbs/yd ² (0.08 kg/m ²)	Coconut fiber 0.50 lbs/yd ² (0.27 kg/m ²)	Straw fiber 0.50 lbs/yd ² (0.27 kg/m ²)
Bottom Net	N/A	Lightweight accelerated photodegradable polypropylene 1.50 lbs/1000 ft ² (0.73 kg/100 m ²) approx wt	N/A	Lightweight photodegradable polypropylene 1.50 lbs/1000 ft ² (0.73 kg/100 m ²) approx wt	Lightweight photodegradable polypropylene 1.50 lbs/1000 ft ² (0.73 kg/100 m ²) approx wt	Heavyweight UV-stabilized polypropylene 2.9 lbs/1000 ft ² (1.47 kg/100 m ²) approx wt	N/A
Thread	Accelerated degradable	Accelerated degradable	Degradable	Degradable	Degradable	UV-stabilized polypropylene	Biodegradable



	TEMPORARY			PERMANENT			
	BIONET			ERONET	VMAX		
	S150BN	SC150BN	C125BN	P300	SC250	C350	P550
Longevity	12 mo.	18 mo.	24 mo.	Permanent	Permanent	Permanent	Permanent
Applications	Moderate Flow Channels 3:1-2:1 Slopes	Medium Flow Channels 2:1-1:1 Slopes	High-Flow Channels 1:1 and Greater Slopes	High-Flow Channels 1:1 Slopes	High-Flow Channels 1:1 and Greater Slopes	High-Flow Channels 1:1 and Greater Slopes	Extreme High-Flow Channels 1:1 and Greater Slopes
Design Permissible Shear Stress lbs/ft ² (Pa)	Unvegetated 1.85 (88)	Unvegetated 2.10 (100)	Unvegetated 2.35 (112)	Unvegetated 3.0 (144) Vegetated 8.0 (383)	Unvegetated 3.0 (144) Vegetated 10.0 (480)	Unvegetated 3.2 (153) Vegetated 12.0 (576)	Unvegetated 4.0 (191) Vegetated 14.0 (672)
Design Permissible Velocity ft/s (m/s)	Unvegetated 6.00 (1.83)	Unvegetated 8.00 (2.44)	Unvegetated 10.00 (3.05)	Unvegetated 9.00 (2.7) Vegetated 16.0 (4.9)	Unvegetated 9.5 (2.9) Vegetated 15.0 (4.6)	Unvegetated 10.5 (3.2) Vegetated 20.0 (6.0)	Unvegetated 12.5 (3.8) Vegetated 25.0 (7.6)
Top Net	Leno woven, 100% biodegradable jute fiber 9.30 lbs/1000 ft ² (4.53 kg/100 m ²) approx wt	Leno woven, 100% biodegradable jute fiber 9.30 lbs/1000 ft ² (4.53 kg/100 m ²) approx wt	Leno woven, 100% biodegradable jute fiber 9.30 lbs/1000 ft ² (4.53 kg/100 m ²) approx wt	Heavyweight UV-stabilized polypropylene 5.0 lbs/1000 ft ² (2.44 kg/100 m ²) approx wt	Heavyweight polypropylene 5.0 lbs/1000 ft ² (2.44 kg/100 m ²) approx wt	Extra heavyweight polypropylene 8.0 lbs/1000 ft ² (3.91 kg/100 m ²) approx wt	Ultra heavyweight polypropylene 24.0 lbs/1000 ft ² (11.7 kg/100 m ²) approx wt
Center Net	N/A	N/A	N/A	N/A	Ultra heavyweight polypropylene – corrugated 24.0 lbs/1000 ft ² (11.7 kg/100 m ²)	Ultra heavyweight polypropylene – corrugated 24.0 lbs/1000 ft ² (11.7 kg/100 m ²)	Ultra heavyweight polypropylene – corrugated 24.0 lbs/1000 ft ² (11.7 kg/100 m ²)
Fiber Matrix	Straw fiber 0.50 lbs/yd ² (0.27 kg/m ²)	Straw/coconut matrix 70% Straw 0.35 lbs/yd ² (0.19 kg/m ²) 30% Coconut 0.15 lbs/yd ² (0.08 kg/m ²)	Coconut fiber 0.50 lbs/yd ² (0.27 kg/m ²)	UV-stabilized polypropylene fiber 0.70 lbs/yd ² (0.38 kg/m ²)	Straw/coconut matrix 70% Straw 0.35 lbs/yd ² (0.19 kg/m ²) 30% Coconut 0.15 lbs/yd ² (0.08 kg/m ²)	Coconut fiber 0.50 lbs/yd ² (0.27 kg/m ²)	UV-stabilized polypropylene fiber 0.50 lbs/yd ² (0.27 kg/m ²)
Bottom Net	Woven, 100% biodegradable jute fiber 7.70 lbs/1000 ft ² (3.76 kg/100 m ²) approx wt	Woven, 100% biodegradable jute fiber 7.70 lbs/1000 ft ² (3.76 kg/100 m ²) approx wt	Woven, 100% biodegradable jute fiber 7.70 lbs/1000 ft ² (3.76 kg/100 m ²) approx wt	Heavyweight UV-stabilized polypropylene 3.0 lbs/1000 ft ² (1.47 kg/100 m ²) approx wt	Heavyweight UV-stabilized polypropylene 5.0 lbs/1000 ft ² (2.44 kg/100 m ²) approx wt	Extra heavyweight polypropylene 8.0 lbs/1000 ft ² (3.91 kg/100 m ²) approx wt	Ultra heavyweight polypropylene 24.0 lbs/1000 ft ² (11.7 kg/100 m ²) approx wt
Thread	Biodegradable	Biodegradable	Biodegradable	UV-stabilized polypropylene	UV-stabilized polypropylene	UV-stabilized polypropylene fiber	UV-stabilized polypropylene



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Specification Sheet – EroNet™ DS75™ Erosion Control Blanket

DESCRIPTION

The ultra short-term single net erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of up to 45 days. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a polypropylene netting having an approximate 0.50 x 0.50 (1.27 x 1.27 cm) mesh with photodegradable accelerators to provide breakdown of the netting within approximately 45 days, depending upon geographical location and elevation. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

The DS75 shall meet Type 1.C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17

Material Content		
Matrix	100% Straw Fiber	0.5 lbs/sq yd (0.27 kg/sm)
Netting	Top side only, lightweight photodegradable with photo accelerators	1.5 lb/1000 sq ft (0.73 g/sm)
Thread	Degradable	

Standard Roll Sizes			
Width	6.67 (2.03 m)	8.0 ft (2.4 m)	16 ft (4.87 m)
Length	108 ft (32.92 m)	112 ft (34.14 m)	108 ft (32.92 m)
Weight ± 10%	40 lbs (18.14 kg)	50 lbs (22.68 kg)	96 lbs (43.54 kg)
Area	80 sq yd (66.9 sm)	100 sq yd (83.61 sm)	192 sq yd (165.5 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.45 in. (11.43 mm)
Resiliency	ECTC Guidelines	78.8%
Water Absorbency	ASTM D1117	375%
Mass/Unit Area	ASTM 6475	8.57 oz/sy (291 g/sm)
Swell	ECTC Guidelines	15%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	6.31 oz-in
Light Penetration	ASTM D6567	10%
Tensile Strength - MD	ASTM D6818	105.6 lbs/ft (1.57 kN/m)
Elongation - MD	ASTM D6818	34%
Tensile Strength - TD	ASTM D6818	42.0 lbs/ft (0.62 kN/m)
Elongation - TD	ASTM D6818	25.2%
Biomass Improvement	ASTM D7322	286%

Design Permissible Shear Stress	
Unvegetated Shear Stress	1.55 psf (74 Pa)
Unvegetated Velocity	5.00 fps (1.52 m/s)

Slope Design Data: C Factors			
Slope Gradients (S)			
Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.029	N/A	N/A
20-50 ft	0.11	N/A	N/A
≥ 50 ft (15.2 m)	0.19	N/A	N/A

Roughness Coefficients – Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.055
0.50 – 2.0 ft	0.055-0.021
≥ 2.0 ft (0.60 m)	0.021



ROLLMAX™
ROLLED EROSION CONTROL

Specification Sheet – EroNet™ C125® Erosion Control Blanket

DESCRIPTION

The long-term double net erosion control blanket shall be a machine-produced mat of 100% coconut fiber with a functional longevity of up to 36 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with a heavyweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and an approximate 0.63 x 0.63 in (1.59 x 1.59 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

The C125 shall meet Type 4 specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17

Material Content

Matrix	100% Coconut Fiber	0.5 lbs/sq yd (0.27 kg/sm)
Netting	Heavyweight photodegradable with UV additives	3 lbs/1000 sq ft (1.47 g/sm)
Thread	Black polypropylene	

Standard Roll Sizes

Width	6.67 (2.03 m)	8 ft (2.44 m)
Length	108 ft (32.92 m)	112 ft (35.14 m)
Weight ± 10%	44 lbs (19.95 kg)	56.25 (25.5 kg)
Area	80 sq yd (66.9 sm)	100 sq yd (83.61 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.22 in. (5.59 mm)
Resiliency	ECTC Guidelines	82%
Water Absorbency	ASTM D1117	167%
Mass/Unit Area	ASTM 6475	7.73 oz/sy (262.8 g/sm)
Swell	ECTC Guidelines	13%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	0.75 oz-in
Light Penetration	ASTM D6567	16.6%
Tensile Strength - MD	ASTM D6818	472.8 lbs/ft (7.01 kN/m)
Elongation - MD	ASTM D6818	25.6%
Tensile Strength - TD	ASTM D6818	225.6 lbs/ft (3.35 kN/m)
Elongation - TD	ASTM D6818	33.9%
Biomass Improvement	ASTM 7322	257%

Design Permissible Shear Stress

Unvegetated Shear Stress	2.25 psf (108 Pa)
Unvegetated Velocity	10.0 fps (3.05 m/s)

Slope Design Data: C Factors

Slope Gradients (S)

Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.001	0.029	0.082
20-50 ft	0.036	0.060	0.096
≥ 50 ft (15.2 m)	0.070	0.090	0.110

Roughness Coefficients – Unveg.

Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.022
0.50 – 2.0 ft	0.022-0.014
≥ 2.0 ft (0.60 m)	0.014

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EC_RM_X_MPDS_EC125_5.13



ROLLMAX™
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Specification Sheet – VMax® C350® Turf Reinforcement Mat

DESCRIPTION

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 100% coconut fiber matrix incorporated into permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between super heavy duty UV-stabilized nettings with 0.50 x 0.50 in. (1.27 x 1.27 cm) openings, an ultra heavy duty UV-stabilized, dramatically corrugated (crimped) intermediate netting with 0.5 x 0.5 in. (1.27 x 1.27 cm) openings, and covered by a super heavy duty UV-stabilized nettings with 0.50 x 0.50 in. (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 in. (3.81 cm) centers with UV-stabilized polypropylene thread to form permanent three-dimensional turf reinforcement matting. All mats shall be manufactured with colored thread stitched along both outer edges as an overlap guide for adjacent mats.

The C350 shall meet Type 5A, B and C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) *FP-03 Section 713.18*.

Material Content

Matrix	100% Coconut Fiber	0.5 lb/sy (0.27 kg/sm)
Netting	Top and Bottom, UV-Stabilized Polypropylene	8 lb/1000 sf (3.91 kg/100 sm)
	Middle, Corrugated UV-Stabilized Polypropylene	24 lb/1000 sf (11.7 kg/100 sm)
Thread	Polypropylene, UV Stable	

Standard Roll Sizes

Width	6.5 ft (2.0 m)
Length	55.5 ft (16.9 m)
Weight ± 10%	37 lbs (16.8 kg)
Thread	40 sy (33.4 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.73 in. (18.54 mm)
Resiliency	ASTM D6524	90%
Density	ASTM D792	0.917 g/cm ³
Mass/Unit Area	ASTM D6566	18.36 oz/sy (624 g/sm)
UV Stability	ASTM D4355/ 1000 HR	86%
Porosity	ECTC Guidelines	99%
Stiffness	ASTM D1388	0.24 in.-lb (275990 mg-cm)
Light Penetration	ASTM D6567	7.2%
Tensile Strength - MD	ASTM D6818	585.8 lbs/ft (8.70 kN/m)
Elongation - MD	ASTM D6818	45.3%
Tensile Strength - TD	ASTM D6818	687.6 lbs/ft (10.20 kN/m)
Elongation - TD	ASTM D6818	19.5%
Biomass Improvement	ASTM D7322	380%

Design Permissible Shear Stress

	Short Duration	Long Duration
Phase 1 Unvegetated	3.2 psf (153 Pa)	3.0 psf (144 Pa)
Phase 2 Partially Veg.	10.0 psf (480 Pa)	10.0 psf (480 Pa)
Phase 3 Fully Veg.	12.0 psf (576 Pa)	10.0 psf (480 Pa)
Unvegetated Velocity	10.5 fps (3.2 m/s)	
Vegetated Velocity	20 fps (6.0 m/s)	

Slope Design Data: C Factors

Slope Length (L)	Slope Gradients (S)		
	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.0005	0.015	0.043
20-50 ft	0.018	0.031	0.050
≥ 50 ft (15.2 m)	0.035	0.047	0.057

Roughness Coefficients – Unveg.

Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.041
0.50 – 2.0 ft	0.040-0.013
≥ 2.0 ft (0.60 m)	0.012



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Specification Sheet – EroNet™ SC150® Erosion Control Blanket

DESCRIPTION

The extended-term double net erosion control blanket shall be a machine-produced mat of 70% agricultural straw and 30% coconut fiber with a functional longevity of up to 24 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the straw and coconut evenly distributed over the entire area of the mat. The blanket shall be covered on the top side with a heavyweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown and an approximate 0.63 x 0.63 in (1.59 x 1.59 cm) mesh, and on the bottom side with a lightweight photodegradable polypropylene netting with an approximate 0.50 x 0.50 (1.27 x 1.27 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

The SC150 shall meet Type 3.B specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17

Material Content

Matrix	70% Straw Fiber	0.35 lbs/sq yd (0.19 kg/sm)
	30% Coconut Fiber	0.15 lbs/sq yd (0.08 kg/sm)
Netting	Top: Heavyweight photodegradable with UV additives	3 lbs/1000 sq ft (1.47 kg/100 sm)
	Bottom: lightweight photodegradable	1.5 lb/1000 sq ft (0.73 kg/100 sm)
Thread	Degradable	

Standard Roll Sizes

Width	6.67 ft (2.03 m)	8 ft (2.4 m)	16.0 ft (4.87 m)
Length	108 ft (32.92 m)	112 ft (34.14 m)	108 ft (32.92 m)
Weight ± 10%	44 lbs (19.95 kg)	55 lbs (24.95 kg)	105.6 lbs (47.9 kg)
Area	80 sq yd (66.9 sm)	100 sq yd (83.61 sm)	192 sq yd (165.6 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.35 in. (8.89 mm)
Resiliency	ECTC Guidelines	75%
Water Absorbency	ASTM D1117	342%
Mass/Unit Area	ASTM D6475	7.87 oz/sy (267.6 g/sm)
Swell	ECTC Guidelines	30%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	1.11 oz-in
Light Penetration	ASTM D6567	6.2%
Tensile Strength - MD	ASTM D6818	362.4 lbs/ft (5.37 kN/m)
Elongation - MD	ASTM D6818	29.4%
Tensile Strength - TD	ASTM D6818	136.8 lbs/ft (2.03 kN/m)
Elongation - TD	ASTM D6818	27.6%
Biomass Improvement	ASTM D7322	481%

Design Permissible Shear Stress

Unvegetated Shear Stress	2.00 psf (96 Pa)
Unvegetated Velocity	8.0 fps (2.44 m/s)

Slope Design Data: C Factors

Slope Length (L)	Slope Gradients (S)		
	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.001	0.048	0.100
20-50 ft	0.051	0.079	0.145
≥ 50 ft (15.2 m)	0.10	0.110	0.190

NTPEP Large-Scale Slope
ASTM D6459 - C-factor = 0.031

Roughness Coefficients – Unveg.

Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.050
0.50 – 2.0 ft	0.050-0.018
≥ 2.0 ft (0.60 m)	0.018

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EC_RM_X_MPDS_ESC150_6.13



Specification Sheet – VMax® SC250® Turf Reinforcement Mat

DESCRIPTION

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 70% straw and 30% coconut fiber matrix incorporated into permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between a heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an ultra heavy UV stabilized, dramatically corrugated (crimped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, and covered by an heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form permanent three-dimensional turf reinforcement matting. All mats shall be manufactured with a colored thread stitched along both outer edges as an overlap guide for adjacent mats.

The SC250 shall meet Type 5A, 5B, and 5C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.18

Material Content

Matrix	70% Straw Fiber	0.35 lb/sq yd (0.19 kg/sm)
	30% Coconut Fiber	0.15 lbs/sq yd (0.08 kg/sm)
Netting	Top and Bottom, UV-Stabilized Polypropylene	5 lb/1000 sq ft (2.44 kg/100 sm)
	Middle, Corrugated UV-Stabilized Polypropylene	24 lb/1000 sf (11.7 kg/100 sm)
Thread	Polypropylene, UV Stable	

Standard Roll Sizes

Width	6.5 ft (2.0 m)
Length	55.5 ft (16.9 m)
Weight ± 10%	34 lbs (15.42 kg)
Area	40 sq yd (33.4 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.62 in. (15.75 mm)
Resiliency	ASTM 6524	95.2%
Density	ASTM D792	0.891 g/cm ³
Mass/Unit Area	ASTM 6566	16.13 oz/sy (548 g/sm)
UV Stability	ASTM D4355/ 1000 HR	100%
Porosity	ECTC Guidelines	99%
Stiffness	ASTM D1388	222.65 oz-in.
Light Penetration	ASTM D6567	4.1%
Tensile Strength - MD	ASTM D6818	709 lbs/ft (10.51 kN/m)
Elongation - MD	ASTM D6818	23.9%
Tensile Strength - TD	ASTM D6818	712 lbs/ft (10.56 kN/m)
Elongation - TD	ASTM D6818	36.9%
Biomass Improvement	ASTM D7322	441%

Design Permissible Shear Stress

	Short Duration	Long Duration
Phase 1: Unvegetated	3.0 psf (144 Pa)	2.5 psf (120 Pa)
Phase 2: Partially Veg.	8.0 psf (383 Pa)	8.0 psf (383 Pa)
Phase 3: Fully Veg.	10.0 psf (480 Pa)	8.0 psf (383 Pa)
Unvegetated Velocity	9.5 fps (2.9 m/s)	
Vegetated Velocity	15 fps (4.6 m/s)	

Slope Design Data: C Factors

Slope Length (L)	Slope Gradients (S)		
	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.0010	0.0209	0.0507
20-50 ft	0.0081	0.0266	0.0574
≥ 50 ft (15.2 m)	0.0455	0.0555	0.081

Roughness Coefficients – Unveg.

Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.040
0.50 – 2.0 ft	0.040-0.012
≥ 2.0 ft (0.60 m)	0.011

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Specification Sheet – VMax® P550® Turf Reinforcement Mat

DESCRIPTION

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 100% UV stable polypropylene fiber matrix incorporated into permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between an ultra heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an ultra heavy UV stabilized, dramatically corrugated (crimped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, and covered by an ultra heavy duty UV stabilized nettings with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form permanent three-dimensional turf reinforcement matting. All mats shall be manufactured with a colored thread stitched along both outer edges as an overlap guide for adjacent mats.

The P550 shall meet Type 5A, 5B, and 5C specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.18

Material Content

Matrix	100% UV stable polypropylene fiber	0.5 lb/sy (0.27 kg/sm)
Netting	Top and Bottom, UV-Stabilized Polypropylene	24 lb/1000 sf (11.7 kg/100 sm)
	Middle, Corrugated UV-Stabilized Polypropylene	24 lb/1000 sf (11.7 kg/100 sm)
Thread	Polypropylene, UV Stable	

Standard Roll Sizes

Width	6.5 ft (2.0 m)
Length	55.5 ft (16.9 m)
Weight ± 10%	52 lbs (23.59 kg)
Area	40 sy (33.4 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.72 in. (18.29 mm)
Resiliency	ASTM 6524	95%
Density	ASTM D792	0.892 g/cm ³
Mass/Unit Area	ASTM 6566	21.25 oz/sy (723 g/sm)
UV Stability	ASTM D4355/ 1000 HR	100%
Porosity	ECTC Guidelines	96%
Stiffness	ASTM D1388	366.3 oz-in.
Light Penetration	ASTM D6567	16.5%
Tensile Strength - MD	ASTM D6818	1421 lbs/ft (21.07 kN/m)
Elongation - MD	ASTM D6818	40.5%
Tensile Strength - TD	ASTM D6818	1191.6 lbs/ft (17.67 kN/m)
Elongation - TD	ASTM D6818	28.8%
Biomass Improvement	ASTM D7322	378%

Design Permissible Shear Stress

	Short Duration	Long Duration
Phase 1: Unvegetated	4.0 psf (191 Pa)	3.25 psf (156 Pa)
Phase 2: Partially Veg.	12.0 psf (576 Pa)	12.0 psf (576 Pa)
Phase 3: Fully Veg.	14.0 psf (672 Pa)	12.0 psf (576 Pa)
Unvegetated Velocity	12.5 fps (3.8 m/s)	
Vegetated Velocity	25 fps (7.6 m/s)	

NTPEP ASTM D6460 Large Scale Channel

Vegetated Shear Stress	>13.2 psf (632 Pa)
Vegetated Velocity	>24.5 fps (7.47 m/s)

Slope Design Data: C Factors

Slope Length (L)	Slope Gradients (S)		
	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.0005	0.015	0.043
20-50 ft	0.0173	0.031	0.050
≥ 50 ft (15.2 m)	0.035	0.047	0.057

Roughness Coefficients – Unveg.

Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.041
0.50 – 2.0 ft	0.040-0.013
≥ 2.0 ft (0.60 m)	0.013

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Specification Sheet – VMax® W3000™ High-Performance Turf Reinforcement Mat

DESCRIPTION

The VMax® W3000™ high performance turf reinforcement mat (HPTRM) is a machine-produced mat of 100% UV-stabilized high denier poly yarns woven into permanent, high strength three-dimensional turf reinforcement matting. The mat consists of a woven bottom layer integrally interlaced into a woven corrugated middle layer, with poly tendons on the top side spanning the entire machine direction. The mat is designed to provide sufficient thickness, optimum open area and three-dimensionality for effective erosion control and vegetation reinforcement against high flow induced shear forces. The mat has high tensile strength providing excellent damage resistance and increased bearing capacity of vegetated soils subject to heavy loads from maintenance equipment and other vehicular traffic. The corrugated structure provides a highly frictional surface to prevent sod slippage when sod is installed over the mat. When used as surface protection without sod overlay, the corrugated structure encapsulates the seed and soil in place while promoting self-soil infilling of the system.

Material Content

	Material Content	
Bottom	100% UV stable poly fiber weave	Black/Green
Corrugated Middle	100% UV stable poly fiber weave	Black/Green
Top	100% UV stable Poly Tendons	Green

Standard Roll Sizes

Width	10 ft (3.05 m)
Length	90 ft (27.4 m)
Weight ± 10%	90 lbs (41.0 kg)
Area	100 sy (83.6 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.40 in. (10.2 mm)
Resiliency	ASTM D6524	98%
Mass/Unit Area	ASTM 6566	14.7oz/sy (495 g/m ²)
Tensile Strength - MD	ASTM D6818	3600 lbs/ft (52.6 kN/m)
Elongation - MD	ASTM D6818	35%*
Tensile Strength - TD	ASTM D6818	3800 lbs/ft (55.5 kN/m)
Elongation - TD	ASTM D6818	20%*
Light Penetration	ASTM D6567	12%
UV Stability	ASTM D4355	>80% @3000 hrs

* Measured on fabric prior to corrugation for true measurement of base fabric elongation

Design Permissible Shear Stress*

Vegetated Shear Stress	16 psf (766 Pa)
Vegetated Velocity	25 fps (7.6 m/s)

*Values extrapolated through ASTM D6460 testing

ASTM D6460 Large Scale Channel

Vegetated Shear Stress	>13.2 psf (632 Pa)
Vegetated Velocity	>24.5 fps (7.47 m/s)

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ATTACHMENT 3.3
RIPRAP APRON WORKSHEET

STANDARD E&S WORKSHEET # 20

Riprap Apron Outlet Protection

PROJECT NAME: Leidy South – Compressor Station 607

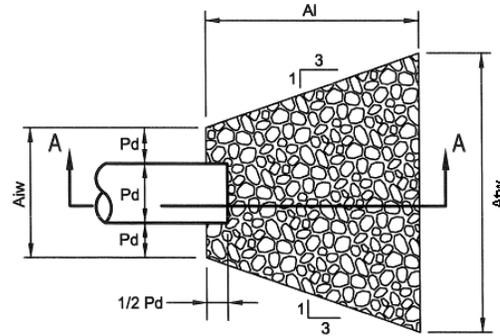
LOCATION: Hensel Replacement – Compressor Station 607

PREPARED BY: FPV

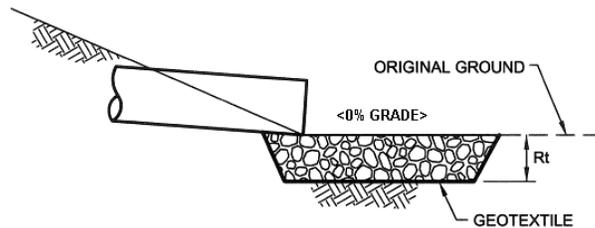
DATE: 05/20/2020

CHECKED BY: KCC

DATE: 05/20/2020



PLAN VIEW

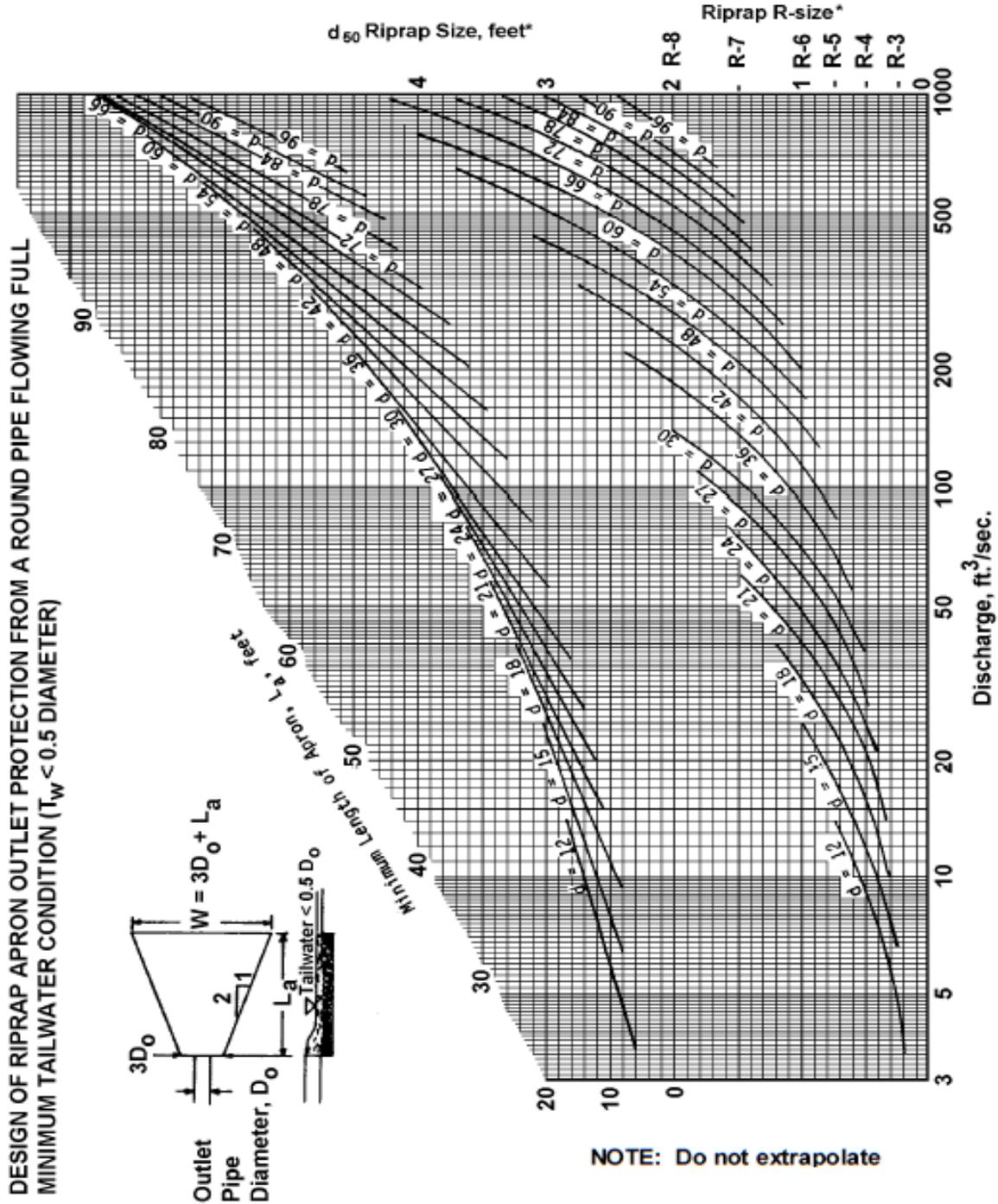


SECTION A - A

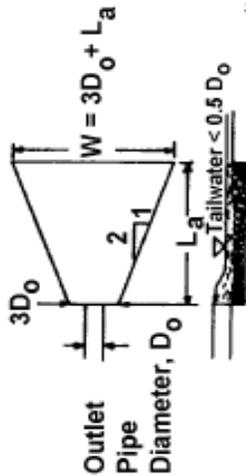
OUTLET ID	PIPE/ CHAN NEL DIA. Do (in.)	TAIL WAT ER CON D. (Max or Min)	MAN. "n" FOR PIPE	PIPE/ CHANN EL SLOPE (FT/FT)	Q (CFS)	V* (FPS)	RIPRAP SIZE	Rt (in)	AI (ft)	Aiw (ft)	Atw (ft)
R-1	24	Min	0.013	0.013	10.05	3.20	R-4	14	14	6	20
R-2	24	Min	0.012	0.011	5.39	5.94	R-3	9	10	6	19
R-3	24	Min	0.042	0.033	8.58	3.5	R-4	14	14	6	20
R-4	24	Min	0.059	0.025	1.38	0.44	R-4	14	14	6	20
R-5	24	Min	0.012	0.011	5.34	5.90	R-3	9	10	6	19
R-6	24	Min	0.012	0.011	5.31	5.90	R-3	9	10	6	19

***:The anticipated velocity (V) should not exceed the maximum permissible shown in Table 6.6 for the proposed riprap protection. Adjust for less than full pipe flow. Use Manning's equation to calculate velocity for pipe slopes ≥ 0.05 ft/ft.**

FIGURE 9.3
Riprap Apron Design, Minimum Tailwater Condition



DESIGN OF RIPRAP APRON OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL
MINIMUM TAILWATER CONDITION ($T_{TW} < 0.5$ DIAMETER)



Adapted from USDA - NRCS

Not to be used for Box Culverts

* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase d_{50} stone size and/or provide velocity reduction device.

ATTACHMENT 3.4
OUTLET BASIN DESIGN WORKSHEET

LEIDY SOUTH PROJECT
COMPRESSOR STATION 607
OUTLET BASIN DESIGN FOR SED BASIN/WET POND OUTLET

PIPE DIAMETER, D (IN)	FLOW, Q (CFS)	OUTLET BASIN WIDTH, W (FT)	OUTLET BASIN LENGTH, L (FT)	OUTLET BASIN DEPTH (FT)	RIPRAP ROCK SIZE	ROCK THICKNESS (IN)	VELOCITY CHECK (FPS)
15	0.05	3	18.00	1.00	R-3	9	0.86

Weir Flow Equation Used for finding head above crest:

$$Q = C * L * H^{1.5}$$

where Q= flow (cfs)

C= weir coefficient (3.0)

L= Crest Length (ft)

H= Head above crest (ft)

Velocity over weir, v (in fps) = $\sqrt{2gH}$, where g= 32.17 fps

From E&S Manual,

Outlet Basin Length = 6x pipe Diameter

Desirable velocity for downslope grass cover = 2.5 fps

ATTACHMENT 3.5
SEDIMENT BASIN DESIGN WORKSHEETS

LEIDY SOUTH
COMPRESSOR STATION 607

STORM WATER MGMT & E&S CONTROL	By: FJ	Date: Dec. 2019
TEMP. SEDIMENTATION BASIN	Ch: KCC	Date: Dec. 2019

**SEDIMENTATION BASIN DESIGN
REQUIRED STORAGE VOLUMES**

The Temporary Basin is designed for approximately 5.95 acres upgradient.
Basin Capacity at Top of Dewatering Zone Elevation (1292.5 ft): 115,688 cf
Required Sediment Storage Capacity: 5.95 ac x 1,000 cf/ac = 5,950 cf
Net Capacity available for Dewatering Zone: 115,688 - 24,061 = 91,627 cf
Drainage Area able to be handled by Dewatering Zone: 91,627 cf/5,000 cf/ac = 18.32 ac.
Calculation Assumes 5,000 cf/ac for dewatering zone
Disturbed Drainage Area able to be handled by Sediment Storage Zone: 24,061/ 1,000 cf/ac = 24.06 ac.

**SEDIMENTATION BASIN DESIGN
EMERGENCY SPILLWAY ANALYSIS**

From BASIN DATA SHEET:

Elev @ Em Spwy Crest, EL6 = 1293.0 ft
Elev @ Flow thru Spwy, EL7 = 1294.0 ft
Elev @ Top of Dam, EL8 = 1295.0 ft
Weir Bottom Width, B = 10.0 ft

Find head on broad-crested weir, H:

$$H = (EL7) - (EL6) = (1294.0 \text{ ft}) - (1293.0 \text{ ft})$$
$$H = 1 \text{ ft}$$

Check freeboard, FB. Freeboard must be at least one foot:

Flow of the 100 year storm

$$FB = (EL8) - (EL7) = (1295.0 \text{ ft}) - (1294.0 \text{ ft})$$
$$FB = 1.0 \text{ ft} \quad \text{OKAY}$$

Find required flow thru em spwy, QMIN. From STAGE-DISCHARGE DATA table, the pr spwy has a capacity of 11.91 cfs when flow thru em spwy is 1294 ft. The required flow thru both em spwy and pr spwy is 2.0 cfs per tributary acre. Thus, required flow thru the em spwy is:

$$Q_{MIN} = [(2.0 \text{ cfs/ac}) (6 \text{ ac})] - (11.91 \text{ cfs})$$
$$Q_{MIN} = 0.09 \text{ cfs}$$

Find flow through weir, Q. The effective length of the weir, L, is equal to the bottom width, B. The weir coefficient, C=2.8

$$Q = (C) (B) (H)^{3/2} = 2.8 (10.0 \text{ ft}) (1 \text{ ft})^{3/2}$$
$$Q = 28 \text{ cfs} > 0.09 \text{ cfs} \quad \text{OKAY}$$

Therefore, the Temporary Basin has capacity to control 18.3 acres of drainage area at any one time all of which may be disturbed.

LEIDY SOUTH
COMPRESSOR STATION 607

STORM WATER MGMT & E&S CONTROL	By: <u>FJ</u>	Date: Dec2019
SEDIMENTATION BASIN	Ch: <u>KCC</u>	Date: Dec 2019

**SEDIMENTATION BASIN DESIGN
STAGE-STORAGE DATA**

STAGE (ft/MSL)	AREA (sq ft)	AVERAGE AREA (sq ft)	DELTA STAGE (ft)	STORAGE VOLUME			
				DELTA VOLUME (cu ft)	DELTA VOLUME (ac.ft)	TOTAL VOLUME (cu ft)	TOTAL VOLUME (ac.ft)
1288.5	22,471					0	0.00000
		23,266	0.5	11,633	0.26706		
1289	24,061					11,633	0.26706
		24,856	0.5	12,428	0.28530		
1289.5	25,651					24,061	0.55236
		26,389	0.5	13,194	0.30290		
1290	27,127					37,255	0.85526
		27,979	0.5	13,989	0.32115		
1290.5	28,830					51,245	1.17641
		29,682	0.5	14,841	0.34070		
1291	30,534					66,085	1.51711
		31,385	0.5	15,693	0.36025		
1291.5	32,237					81,778	1.87737
		33,088	0.5	16,544	0.37980		
1292	33,940					98,322	2.25717
		34,732	0.5	17,366	0.39867		
1292.5	35,524					115,688	2.65584
		36,316	0.5	18,158	0.41685		
1293	37,108					133,846	3.07269
		37,900	0.5	18,950	0.43503		
1293.5	38,692					152,796	3.50772
		39,484	0.5	19,742	0.45321		
1294	40,276					172,538	3.96093
		41,016	0.5	20,508	0.47079		
1294.5	41,755					193,046	4.43173
		42,495	0.5	21,247	0.48777		
1295	43234					214293.2	4.9194954

LEIDY SOUTH
COMPRESSOR STATION 607

STORM WATER MGMT & E&S CONTROL	By: FJ	Date: Dec 2019
	Ch: KCC	Date: Dec 2019

**SEDIMENTATION BASIN DESIGN
STAGE-DISCHARGE DATA**

Elev. of Barrel O/Let: 1289	Holes/Row: 3
Length of Barrel: 100 feet	Diameter/Hole: 1 inches
Inside Diameter of Barrel: 15.00 inches	Riser Diameter: 20 inches
Manning's 'n' of Barrel 0.012 *	Top of Riser: 1292.5

STAGE (ft/MSL)	PERFORATIONS		RISER		BARREL		TOTAL
	ORIFICE FLOW		ORIFICE/WEIR FLOW		PIPE FLOW		DISCHARGE
	HEAD (ft)	Q (cfs)	HEAD (ft)	Q (cfs)	HEAD (ft)	Q (cfs)	Q (cfs)
1289.5	0.0	0.00	---	---	0.50	3.8	0.00
1290	0.5	0.06	---	---	1.00	5.3	0.06
1290.5	1.0	0.13	---	---	1.50	6.5	0.13
1291	1.5	0.23	---	---	2.00	7.5	0.23
1291.5	2.0	0.34	---	---	2.50	8.4	0.34
1292	2.5	0.47	---	---	3.00	9.2	0.47
1292.5	3.0	0.60	0.00	0.00	W 3.50	10.0	0.60
1293	3.5	0.75	0.50	5.74	W 4.00	10.7	6.49
1293.5	4.0	0.85	1.00	10.50	O 4.50	11.3	11.30
1294	4.5	0.94	1.50	12.87	O 5.00	11.9	11.91
1295	5.5	1.09	2.50	16.61	O 6.00	13.0	13.04

W: Riser under weir flow control
O: Riser under orifice flow control

LEIDY SOUTH
COMPRESSOR STATION 607

STORM WATER MGMT & E&S CONTROL	By: FJ	Date: Dec 2019
	Ch: KCC	Date: Dec 2019

**SEDIMENTATION BASIN DESIGN
DEWATERING TIME**

STAGE (ft/MSL)	VOLUME STORED (cu ft)	DELTA VOLUME (cu ft)	DISCHARG AVERAGE Q (cfs)	DELTA AVERAGE DISCHGE (cfs)	DELTA TIME (hr)	TOTAL TIME (hr)	TOTAL TIME (days)
1292.50	115,688		0.603			0.00	0.00
1292.00	98,322	17,366	0.467	0.535	9.013	9.01	0.376
1291.50	81,778	16,544	0.342	0.405	11.356	20.37	0.849
1290.50	51,245	30,534	0.134	0.238	35.569	55.94	2.331
1289.50	24,061	27,184	0.000	0.067	112.288	168.23	7.009

ATTACHMENT 3.6
ANTI-SEEP COLLAR DESIGN WORKSHEET

Anti-Seep Collar Design

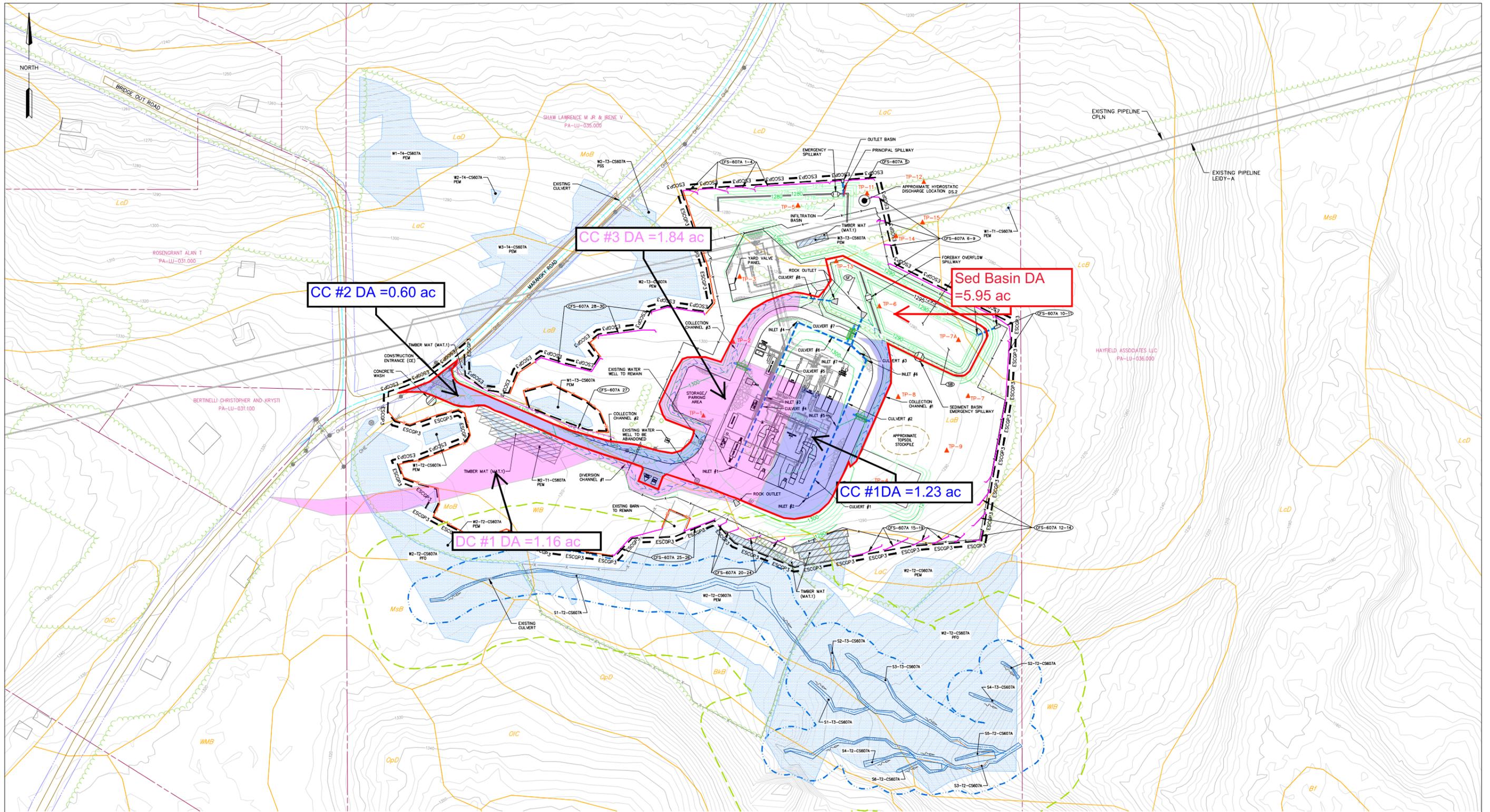
Leidy South Compressor Station 607 Sediment Basin/ Wet Pond

Name	Pipe Dia. [ft]	Temporary/ Permanent	Top of Dewatering Volume to Upstream Invert (y) ¹ [ft]	Embankment slope (Z) ¹ [x:1]	Pipe Slope [%]	Number of Collars (Input) -	Pipe Length in Saturated Zone (Ls) ² [ft]	Req. Increase in Flow Path (Lf) ³ [ft]	Increase in Flow Path [ft]	Min. Collar Projection (V) ⁴ [in]	Side Dim. of Square Collar (S) ⁵ [in]	Dist., Riser to 1st Collar [ft]
1	1.25	Permanent	3.5	3	1%	2	25.00	28.75	3.75	11.25	38	5

Notes:

- 1) Equations reference Figure 7.6 from PA Department of Environmental Protection Erosion and Sediment Control Program Manual, Technical Guidance Number: 363-2134-008, March 2012
- 2) $L_s = y(z+4) * [1 + (\text{pipe slope} / 0.25 - \text{pipe slope})]$
- 3) 10% increase of Pipe Length in Saturated Zone for temporary basins, 15% increase for Permanent Basins
- 4) $V = (\text{Req. Increase in Flow Path} - \text{Pipe Length in Saturated Zone}) / 2 * \text{Number of Collars}$
- 5) S refers to dimension shown in Standard Construction Detail #7-16 from the PA DEP Erosion and Sediment Control Program Manual

ATTACHMENT 4
E&SC DRAINAGE AREA MAP



LEGEND

	COMPOST FILTER SOCK		PROPERTY LINE
	COMPOST FILTER SOCK SEDIMENT TRAP		EXISTING UTILITY POLE / TOWER
	TRENCH PLUG		EXISTING UTILITY LINE
	COLLECTION CHANNEL		PROPOSED CULVERT
	ROCK CONSTRUCTION ENTRANCE		PROPOSED FENCE
	PROPOSED PIPELINE		EXISTING CULVERT
	ESCOP-3 PERMIT BOUNDARY		EXISTING STRUCTURE
	LIMITS OF DISTURBANCE		EXISTING ROAD (GRAVEL)
	EXISTING LEIDY / TOPL PIPELINES		EXISTING ROAD (PAVED)
	EXISTING FOREIGN PIPELINES		12" CRUSHED STONE (AASHTO #57)
	EXISTING PIPELINE RIGHT-OF-WAYS		4"-6" CRUSHED STONE (AASHTO #57)
	DELINEATED WETLAND		GRASSED AREA
	DELINEATED WATERWAY / STREAM (TOP OF BANK)		EXISTING MINOR CONTOURS (2' C.I.)
	STREAM FLOW DIRECTION		EXISTING MAJOR CONTOURS (10' C.I.)
	RIPIARIAN BUFFER		PROPOSED MINOR CONTOURS (2' C.I.)
	50' FLOODWAY		PROPOSED MAJOR CONTOURS (10' C.I.)
	FEMA 100-YEAR FLOODPLAIN		SPILLWAY
	SOIL BOUNDARY / TYPE		CONCRETE WASH
	EXISTING TREELINE / TREE / SHRUB		INFILTRATION TEST LOCATION

SOIL LEGEND

LaB	LAOKAWANNA CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES
LaC	LAOKAWANNA CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES
LcB	LAOKAWANNA CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPES
LaD	LAOKAWANNA CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES, EXTREMELY STONY
MoB	MORRIS CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES
WB	WELLSBORO CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES

- NOTES/SOURCES**
- EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO BETWEEN OCTOBER 2018 AND JULY 2019.
 - PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO OR A COMBINATION OF DEED REFERENCE AND FIELD LOCATED EVIDENCE. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
 - THE FLOODWAY/FLOODPLAIN LINE AS SHOWN ON THE PLANS WAS DEVELOPED FROM AVAILABLE FEMA FLOODWAY MAPPING, FEMA FLOODPLAIN MAPPING, AND THE PA CHAPTER 105 DEFINITION.
 - PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
 - STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING FROM OCTOBER 2018 TO JUNE 2019.
 - DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD83, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.
 - OTHER EXISTING INFORMATION SHOWN IN PLANS, PROVIDED BY A COMBINATION OF TRANSCO AND HUNT, GUILLOT & ASSOCIATES, LLC.
 - CONTRACTOR MAY ELECT TO USE DIVERSION CHANNEL OR IF CONDITIONS ALLOW WILL PLACE AN EARTHEN BERM OF APPROPRIATE SIZE THAT WILL CONVEY FLOW TO THE RESPECTIVE DESIGNATED CLEAN WATER CROSSING.

NOT TO SCALE

.. \WHM consulting_CMYK.jpg

KEVIN C. CLARK, P.E.		REVISIONS				W.D. NO.	CHK.	APP.
NO.	DATE	BY	DESCRIPTION					
1	05/04/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZE WETLAND IMPACTS AND PER PADEP COMMENTS					

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PENNSYLVANIA PROFESSIONAL ENGINEER

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN

SOIL EROSION & SEDIMENT CONTROL PLAN
PROPOSED CONDITIONS PLAN

FAIRMONT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DRAWN BY: SWH	DATE: 7/28/19	ISSUED FOR BLD:	SCALE: 1" = 100'
CHECKED BY: KMC	DATE: 9/15/19	ISSUED FOR CONSTRUCTION:	REVISION: 1
APPROVED BY: KCC	DATE: 9/20/19		SHEET 3 OF 9
WD: 12/12/27	PRD:	DRAWING NUMBER: 26-1000-70-28-D	

ATTACHMENT 5
OFFSITE DISCHARGE REPORT



Transcontinental Gas Pipe Line Company, LLC

Offsite Discharge Report

Leidy South Project – Compressor Station 607

**Wet Pond Outlet Structure
&
Infiltration Basin Outlet Structure**

May 2020

1.0 Project Description

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc., is proposing the Leidy South Project (Project). Compressor Station 607 is proposed as part of the overall Project Compressor Station 607 will consist of installing two Solar Titan 130 gas driven turbine compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The new Compressor Station will require Erosion and Sediment (E&S) Control and Post Construction Stormwater Management (PCSM) Best Management Practices (BMP's) to manage stormwater runoff during and after construction.

Transco has developed an Offsite Discharge Report for the discharges associated with the proposed BMP's in response to technical deficiency comments issued by Pennsylvania Department of Environmental Protection (PaDEP) on April 3, 2020. An Offsite Discharge Report is performed to ensure that no offsite erosion will occur downstream of the proposed activities. The analysis conducted for this project followed the sequence outlined in PaDEP's factsheet for offsite discharges (Document #3930-FS-DEP4124).

2.0 Conveyance Best Management Practices

Erosion and Sediment Control and Post Construction Stormwater Management BMP's are proposed to manage stormwater runoff during and after construction. A sediment basin and wet pond and infiltration basin will be installed to convey the net increase in volume between the pre and post development 2-year storm events and mitigate the increase (pre-post development) in peak runoff for the 2-, 10-, 50-, and 100-year storm events. An outlet basin, which flows to an offsite area, is proposed as the discharge structure at these locations.

2.1 Sediment Basin / Wet Pond

The sediment basin/wet pond discharges and flows offsite into the adjacent forested area located southeast of the Limits of Disturbance. The stormwater is being discharged as sheet flow and travels along a vegetative flow path until it reaches Lick Branch. The flow path is depicted on Attachment A. Soil types and the erodibility factors within the flow path are shown on Table 1.

*Leidy South Project
Compressor Station 607
Transcontinental Gas Pipe Line Company, LLC
Offsite Discharge Report*

Table 1 – Soils Mapping within Flow Path	
Soil Mapping Unit	Soil Erodibility Factor, K_f
LaC	$K_f = 0.32$
LcD	$K_f = 0.32$
MsB	$K_f = 0.37$

The soil erodibility factors are shown in Table 1. A low K value indicates the soil will not easily erode whereas a high K value means the soil will easily erode. All of the soils in the flow path are considered moderately erodible (0.32 – 0.37). Photos were taken along the flow path of the downstream area to show the vegetative cover.

*Leidy South Project
Compressor Station 607
Transcontinental Gas Pipe Line Company, LLC
Offsite Discharge Report*



Photo 1 : Existing Area at Proposed Outlet Basin for Sediment Basin/Wet Pond



Photo 2 : Area Downgradient of the Proposed Outlet Basin for Sediment Basin/Wet Pond

Photo 1 shows the existing condition where the outlet basin for the Sediment Basin / Wet Pond is proposed. The area will be graded to facilitate the installation of the sediment basin/wet pond and revegetated. Photo 2 shows the areas downgradient of the proposed outlet basin, which is over 90% vegetated. In the E&S and PCSM Narrative, site calculations are provided that show the Pre- and Post-Construction runoff flow rates and volume. These calculations show a reduction in the post-construction discharge rates and volumes. Calculations indicated that the discharge velocity at the proposed outlet basin are 0.86 feet per second for the for the 25 year, 24-hour storm event.

2.2 Infiltration Basin

The infiltration basin discharges and flows offsite into the adjacent forested area located northwest of the Limits of Disturbance. The stormwater is being discharged as

sheet flow and travels along a vegetative flow path until it reaches Lick Branch. The flow path is depicted on Attachment A. Soil types and the erodibility factors within the flow path are shown on Table 2.

Table 2 – Soils Mapping within Flow Path	
Soil Mapping Unit	Soil Erodibility Factor, K_f
LaB	$K_f = 0.32$
LaC	$K_f = 0.32$
LcD	$K_f = 0.32$
MsB	$K_f = 0.37$

The soil erodibility factors are shown in Table 1. A low K value indicates the soil will not easily erode whereas a high K value means the soil will easily erode. All of the soils in the flow path are considered moderately erodible (0.32 – 0.37). Photos were taken along the flow path of the downstream area to show the vegetative cover.

*Leidy South Project
Compressor Station 607
Transcontinental Gas Pipe Line Company, LLC
Offsite Discharge Report*



Photo 3 : Existing Area at Proposed Outlet Basin for Infiltration Basin



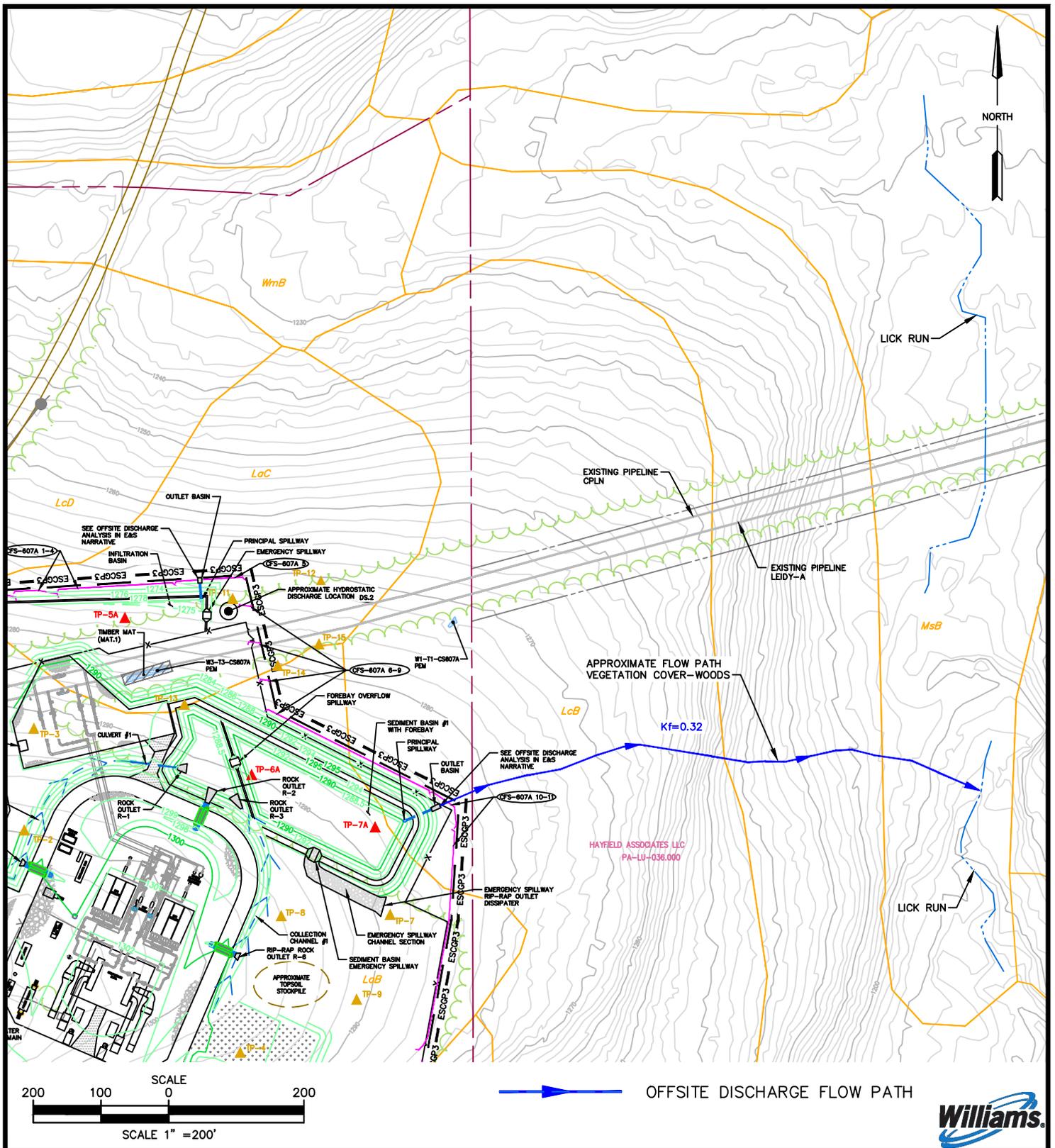
Photo 4 : Area Downgradient of the Proposed Outlet Basin for Infiltration Basin

Photo 3 shows the existing condition where the outlet basin for the infiltration basin is proposed. The area will be graded to facilitate the installation of the infiltration basin and revegetated. Photo 4 shows the areas downgradient of the proposed outlet basin for the infiltration basin, which is over 90% vegetated. In the E&S and PCSM Narrative, site calculations are provided that show the Pre- and Post-Construction runoff flow rates and volume. These calculations show a reduction in the post-construction discharge rates and volumes. Calculations indicated that the discharge velocity at the proposed outlet basin are 2.47 feet per second for the for the 25 year, 24-hour storm event.

3.0 Conclusion

The Offsite Discharge Report completed for the proposed sediment basin/wet pond and infiltration basin indicated that the flow path downgradient of the outlet basin is not anticipated to erode during storm events due to the existing vegetative conditions, low discharge velocities, and soil erodibility values.

ATTACHMENT A
OUTLET FLOW PATH MAPS




designs, permits, resolutions | **consulting, inc.**

2525 GREEN TECH DRIVE, SUITE B
STATE COLLEGE, PA 16803

TELEPHONE: (814)-689-1650 FAX: (814)-689-1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607

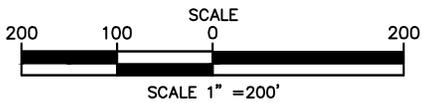
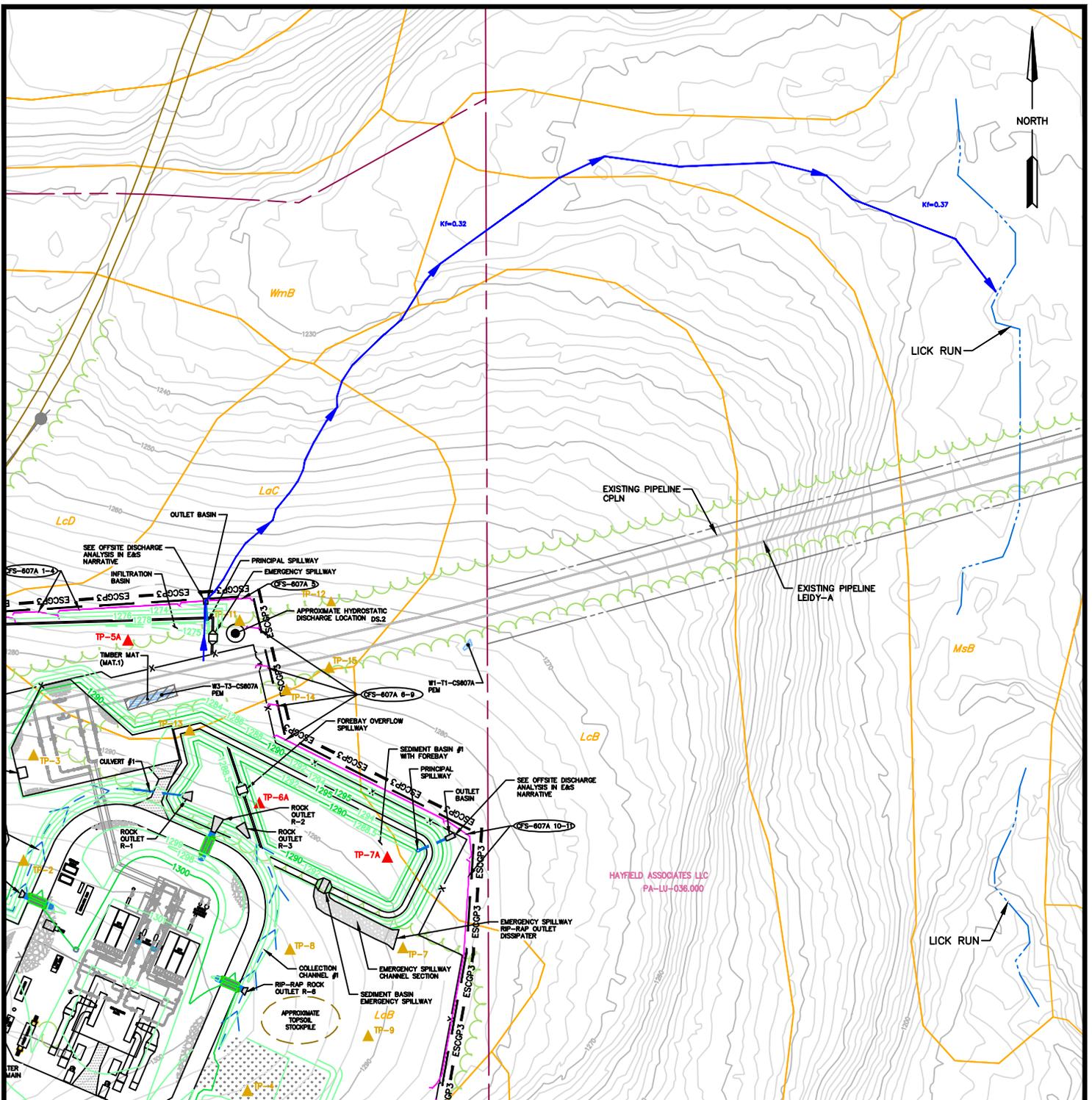
EROSION AND SEDIMENTATION CONTROL PLAN

FLOW PATH

FAIRMONT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DATE:	05/11/20
DRAWN BY:	RHM
CHECKED:	KCC
WHM DRAWING NO:	BASIN 1 (FLOW PATH)
EXHIBIT 1.0	





➡ OFFSITE DISCHARGE FLOW PATH



2525 GREEN TECH DRIVE, SUITE B
STATE COLLEGE, PA 16803

TELEPHONE: (814)-689-1650

FAX: (814)-689-1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607

**EROSION AND SEDIMENTATION
CONTROL PLAN**

FLOW PATH

DATE:

05/11/20

DRAWN BY:

RHM

CHECKED:

KCC

WHM DRAWING NO:

INF. BASIN (FLOW PATH)

EXHIBIT 1.0

FAIRMONT TOWNSHIP

LUZERNE COUNTY

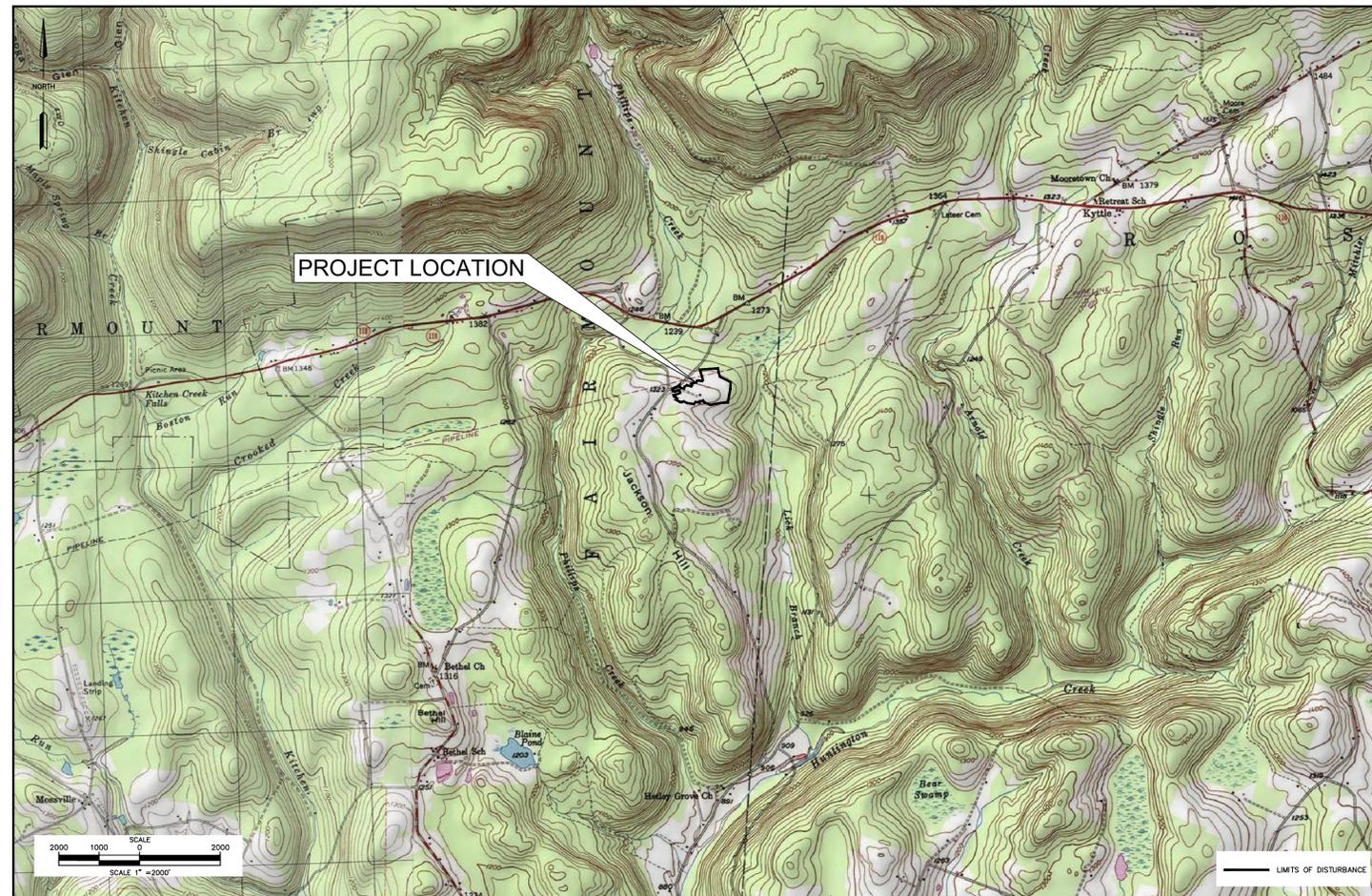
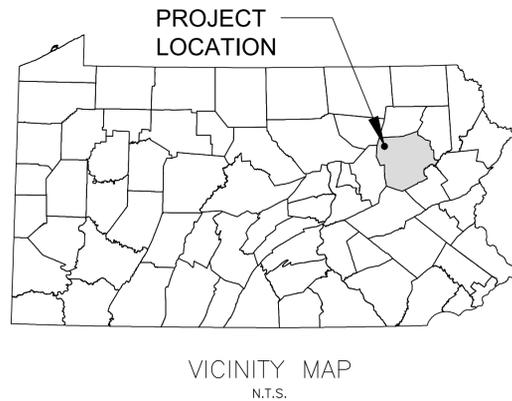
PENNSYLVANIA

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC SOIL EROSION & SEDIMENT CONTROL PLAN

LEIDY SOUTH PROJECT COMPRESSOR STATION 607

FAIRMOUNT TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

SEPTEMBER 2019
(REVISED MAY 2020)



LOCATION MAP

PROJECT OWNER/APPLICANT

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
PARK PLACE CORPORATE CENTER TWO,
2800 POST OAK BLVD
HOUSTON, TX 77056
PH: 713.215.3427
CONTACT: JOSEPH DEAN, ENVIRONMENTAL MANAGER

PLAN PREPARER / ENGINEER

WHM CONSULTING, INC
2525 GREEN TECH DRIVE, SUITE B
STATE COLLEGE, PA 16803
PH: (814) 689-1650
CONTACT: KEVIN M. CLARK, PROJECT MANAGER

BAI GROUP, LLC
2525 GREEN TECH DRIVE, SUITE D
STATE COLLEGE, PA 16803
PH: (814) 238-2060
CONTACT: KEVIN C. CLARK, P.E.

PROJECT INFORMATION

ESCGP-3 PERMIT BOUNDARY: 19.35 ACRES

LIMIT OF DISTURBANCE: 18.21 ACRES

SHEET INDEX	
SHEET NUMBER	DRAWING TITLE
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2 OF 10	SOIL EROSION & SEDIMENT CONTROL PLAN EXISTING CONDITIONS
3 OF 10	SOIL EROSION & SEDIMENT CONTROL PROPOSED CONDITIONS PLAN
4 OF 10	SOIL EROSION & SEDIMENT CONTROL PLAN NOTES SHEET 1
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RECEIVING WATERS			
NAME	DESIGNATED USE	EXISTING USE	PFBC CLASSIFICATION
Lick Branch	HQ-CWF, MF	-	Class A Wild Trout
Phillips Creek	HQ-CWF, MF	-	Class A Wild Trout

MF: MIGRATORY FISHES, HQ-CWF: HIGH QUALITY - COLD WATER FISHES

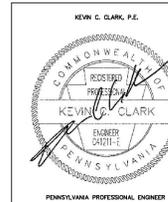
SOIL EROSION & SEDIMENT CONTROL PLAN LEGEND		
DESCRIPTION	SYMBOL	SHEET NUMBER
CONSTRUCTION ENTRANCE	CE	7
COMPOST FILTER SOOK	CFS	7
FILTER BAG INLET PROTECTION	IP	7
RISER PIPE	RP	7
COMPOST SOCK CONCRETE WASHOUT INSTALLATION		7
TYPICAL TOPSOIL STOCKPILE	TTS	7
EROSION CONTROL BLANKET	ECB	8
TRENCH DEWATERING	TD	8
TYPICAL SEDIMENT FOREBAY	SF	8
SEDIMENT BASIN	SD	8
TYPICAL COLLECTION CHANNEL	CC	8
SURFACE ROUGHENING TEMPORARY EAS MEASURE	SR	8
TIMBER MATTING CONSTRUCTION	MAT.1	8
PERMANENT/TEMPORARY STONE ACCESS ROAD	AR	8
COMPRESSOR PAD	CP	8
SEDIMENT BASIN EMERGENCY SPILLWAY	SB-1	9
SEDIMENT BASIN EMBANKMENT	SBE	9
METAL ANTI-SEEP COLLAR FOR TEMPORARY BASINS OR TRAPS	C	9
SEDIMENT BASIN TEMPORARY RISER	SB-2	9
RIPRAP APRON OUTLET PROTECTION	OP	9
TYPICAL ACCESS ROAD CULVERT	RC	9
OUTLET BASIN DETAIL	OB	9

XXX INDICATES SOIL EROSION CONTROL MEASURE DETAIL

PROJECT DESCRIPTION
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC (TRANSCO), A SUBSIDIARY OF THE WILLIAMS COMPANIES, INC. (WILLIAMS), WILL FILE AN APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY (CERTIFICATE) WITH THE FEDERAL ENERGY REGULATORY COMMISSION (FERC OR COMMISSION) FOR THE PROJECT. THE PROJECT IS AN EXPANSION OF TRANSCO'S EXISTING NATURAL GAS TRANSMISSION SYSTEM AND AN EXTENSION OF TRANSCO'S SYSTEM THROUGH A CAPACITY LEASE WITH NATIONAL FUEL GAS SUPPLY CORPORATION THAT WILL ENABLE TRANSCO TO PROVIDE 582,400 DEKATHERMS PER DAY (DTH/D) OF INCREMENTAL FIRM TRANSPORTATION CAPACITY FOR ABUNDANT SUPPLIES OF NATURAL GAS FROM NORTHERN AND WESTERN PENNSYLVANIA TO EXISTING AND GROWING MARKETS IN TRANSCO'S ZONE 6. THE COMPRESSOR STATION 607 PORTION OF THE PROJECT CONSISTS OF THE FOLLOWING PRIMARY COMPONENTS:
• INSTALL TWO GAS TURBINE-DRIVEN COMPRESSOR UNITS (23,465 NOMINAL HP AT INTERNATIONAL ORGANIZATION FOR STANDARDIZATION [ISO] CONDITIONS EACH, 46,930 HP TOTAL) AND GAS COOLERS

SUBJECT TO FERC APPROVAL OF THE PROJECT AND RECEIPT OF THE NECESSARY PERMITS AND AUTHORIZATIONS, TRANSCO ANTICIPATES THAT CONSTRUCTION OF THE PROJECT WOULD COMMENCE IN WINTER 2020/2021 TO MEET A TARGET IN-SERVICE DATE OF DECEMBER 1, 2021.

Call before you dig. **811**
1-800-242-1776 or

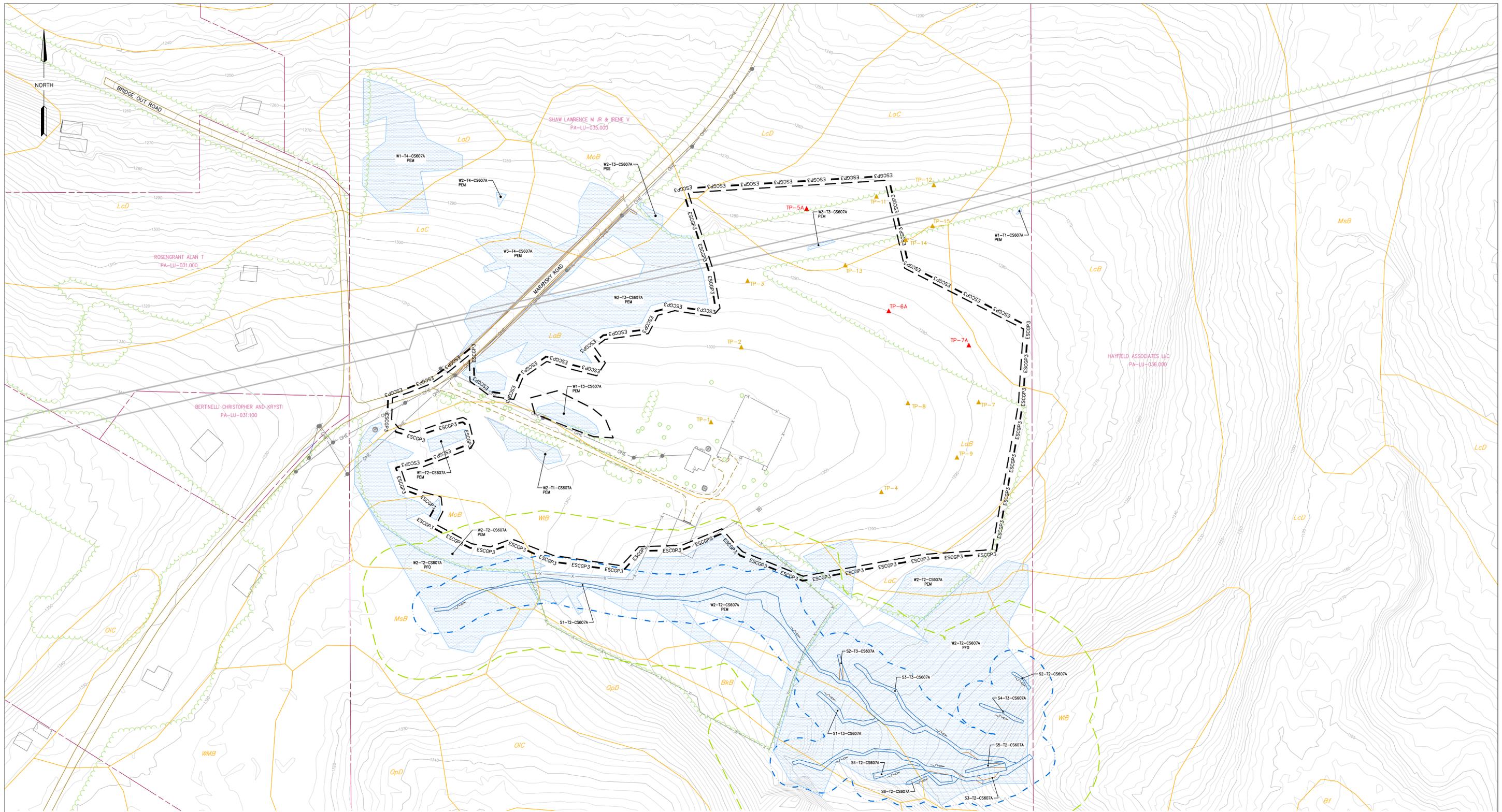


REVISIONS					
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK. APP.
1	5/04/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZE WETLAND IMPACTS AND PER PDEP COMMENTS		

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC **Williams**
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN

SOIL EROSION & SEDIMENT CONTROL PLAN COVER SHEET

FAIRMOUNT TOWNSHIP,		LUZERNE COUNTY,		PENNSYLVANIA	
DRAWN BY: SWH	DATE: 7/29/19	ISSUED FOR BID:	SCALE:		
CHECKED BY: KMC	DATE: 9/15/19	ISSUED FOR CONSTRUCTION:	REVISION: 1		
APPROVED BY: KCC	DATE: 9/20/19	DRAWING NUMBER: 26-1000-70-28-D	SHEET 1 OF 10		



LEGEND

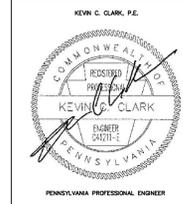
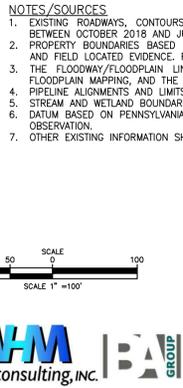
	PROPERTY LINE		TP-15	SOIL TEST PIT LOCATION (2019)
	EXISTING MINOR CONTOURS (2' C.L.)		TP-7A	SOIL TEST PIT LOCATION (2020)
	EXISTING MAJOR CONTOURS (10' C.L.)			
	ESCGP-3 PERMIT BOUNDARY			
	LIMITS OF DISTURBANCE			
	EXISTING LEIDY / TGPL PIPELINES			
	EXISTING FOREIGN PIPELINES			
	EXISTING PIPELINE RIGHT-OF-WAY			
	EXISTING UTILITY POLE / TOWER			
	EXISTING UTILITY LINE			
	EXISTING FENCE			
	EXISTING STRUCTURE			
	EXISTING ROAD (GRAVEL)			
	EXISTING ROAD (PAVED)			
	DELINEATED WETLAND			
	DELINEATED WATERWAY / STREAM (TOP OF BANK)			
	STREAM FLOW DIRECTION			
	RIPARIAN BUFFER			
	50' FLOODWAY			
	MoB2			
	SOIL BOUNDARY / TYPE			
	EXISTING TREELINE / TREE / SHRUB			

SOIL LEGEND

LaB	LACKAWANNA CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES
LcB	LACKAWANNA CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES
LcB	LACKAWANNA CHANNERY SILT LOAM, 15 TO 25 PERCENT SLOPES
LcD	LACKAWANNA CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES, EXTREMELY STONY
MoB	MORRIS CHANNERY SILT LOAM, 0 TO 8 PERCENT SLOPES
Wb	WELLSBORO CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES

NOTES/SOURCES

- EXISTING ROADWAYS, CONTOURS, PROPERTY LINE, TREE LINE, ETC. ARE DERIVED FROM A FIELD SURVEY PERFORMED BY TRANSCO BETWEEN OCTOBER 2018 AND JULY 2019.
- PROPERTY BOUNDARIES BASED EITHER ON TAX PARCEL INFORMATION PROVIDED BY TRANSCO OR A COMBINATION OF DEED REFERENCE AND FIELD LOCATED EVIDENCE. PROPERTY BOUNDARY LOCATIONS BASED ON TAX PARCEL INFORMATION ARE APPROXIMATE.
- THE FLOODWAY/FLOODPLAIN LINE AS SHOWN ON THE PLANS WAS DEVELOPED FROM AVAILABLE FEMA FLOODWAY MAPPING, FEMA FLOODPLAIN MAPPING, AND THE PA CHAPTER 105 DEFINITION.
- PIPELINE ALIGNMENTS AND LIMITS OF DISTURBANCE PROVIDED BY TRANSCO.
- STREAM AND WETLAND BOUNDARIES BASED ON SURVEYS CONDUCTED BY WHM CONSULTING FROM OCTOBER 2018 TO JUNE 2019.
- DATUM BASED ON PENNSYLVANIA STATE PLANE COORDINATE SYSTEM, NAD 83 NORTH ZONE, NAVD88, ELEVATION MSL, DERIVED FROM GPS OBSERVATION.
- OTHER EXISTING INFORMATION SHOWN IN PLANS, PROVIDED BY A COMBINATION OF TRANSCO AND HUNT, GUILLOT & ASSOCIATES, LLC.



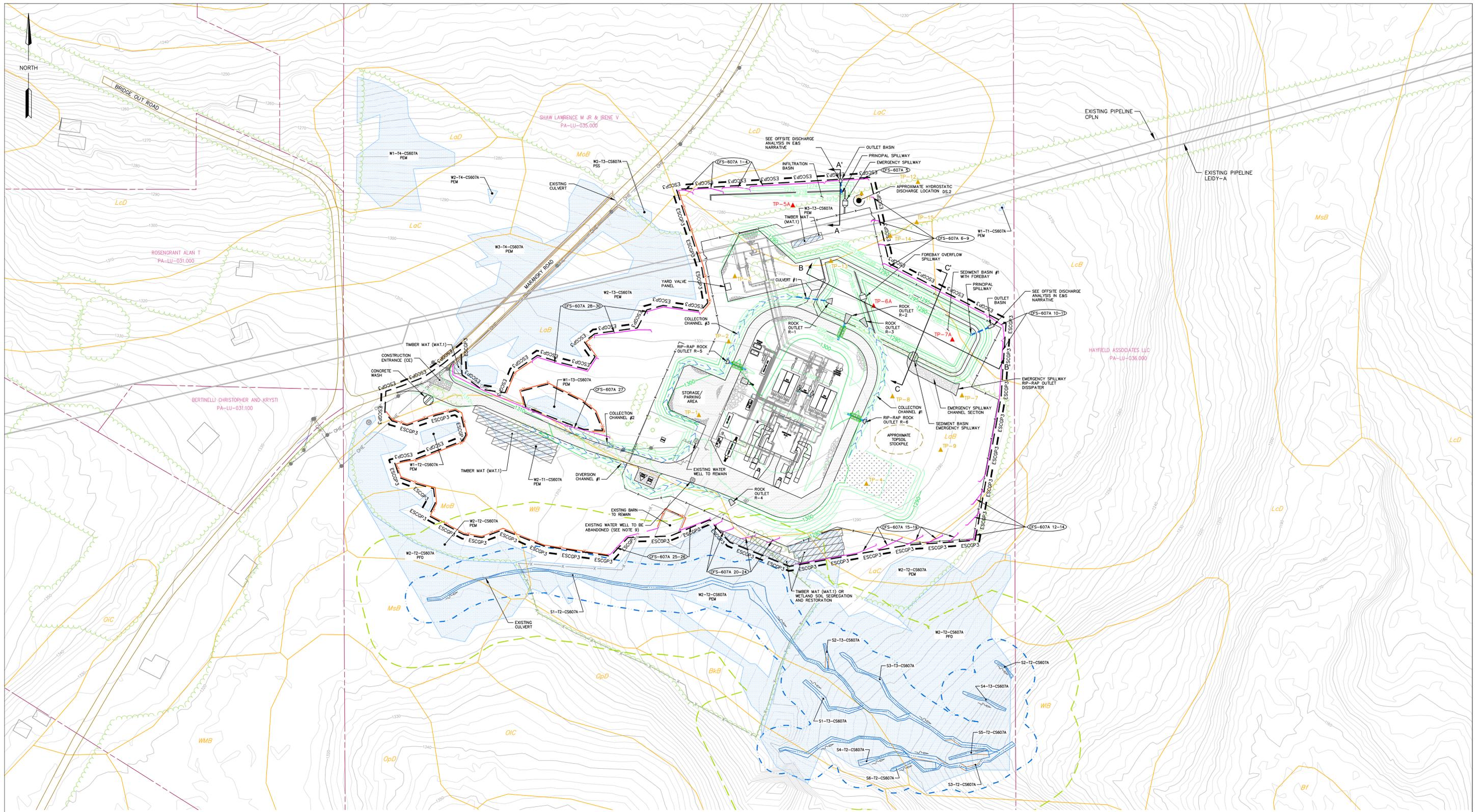
NO.		DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1		5/04/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZED WETLAND IMPACTS AND PER PADEP COMMENTS			

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN

**SOIL EROSION & SEDIMENT CONTROL PLAN
EXISTING CONDITIONS**

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DRAWN BY: SWH	DATE: 7/20/19	ISSUED FOR BID:	SCALE: 1" = 100'
CHECKED BY: KMC	DATE: 9/15/19	ISSUED FOR CONSTRUCTION:	REVISION: 1
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LEGEND

	COMPOST FILTER SOCK		EXISTING UTILITY POLE / TOWER
	TRENCH PLUG		EXISTING UTILITY LINE
	COLLECTION CHANNEL		PROPOSED CULVERT
	ROCK CONSTRUCTION ENTRANCE		PROPOSED FENCE
	PROPOSED PIPELINE		EXISTING CULVERT
	ESCOP-3 PERMIT BOUNDARY		EXISTING STRUCTURE
	LIMITS OF DISTURBANCE		EXISTING ROAD (GRAVEL)
	EXISTING LEIDY / TOPL PIPELINES		EXISTING ROAD (PAVED)
	EXISTING FOREIGN PIPELINES		12" CRUSHED STONE (AASHTO #57)
	EXISTING PIPELINE RIGHT-OF-WAYS		4" - 6" CRUSHED STONE (AASHTO #57)
	DELINEATED WETLAND		GRASSED AREA
	DELINEATED WATERWAY / STREAM (TOP OF BANK)		EXISTING MINOR CONTOURS (2' C.I.)
	STREAM FLOW DIRECTION		EXISTING MAJOR CONTOURS (10' C.I.)
	RIPIARIAN BUFFER		PROPOSED MINOR CONTOURS (2' C.I.)
	50' FLOODWAY		PROPOSED MAJOR CONTOURS (10' C.I.)
	FEMA 100-YEAR FLOODPLAIN		ROCK OUTLET
	SOIL BOUNDARY / TYPE		SPILLWAY
	EXISTING TREELINE / TREE / SHRUB		CONCRETE WASH
	PROPERTY LINE		SOIL TEST PIT LOCATION (2019)
			SOIL TEST PIT LOCATION (2020)

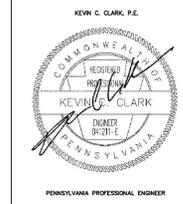
CROSS SECTION LOCATION

SOIL LEGEND

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- OTHER EXISTING INFORMATION SHOWN IN PLANS, PROVIDED BY A COMBINATION OF TRANSCO AND HUNT, GUILLOT & ASSOCIATES, LLC.
- CONTRACTOR MAY ELECT TO USE DIVERSION CHANNEL OR IF CONDITIONS ALLOW WILL PLACE AN EARTHEN BERM OF APPROPRIATE SIZE THAT WILL CONVEY FLOW TO THE RESPECTIVE DESIGNATED CLEAN WATER CROSSING.
- EXISTING WELL WILL BE ABANDONED VIA GROUTING AS PROVIDED IN PADEP'S WATER-WELL ABANDONMENT GUIDELINES (CHAPTER 7 OF THE GROUNDWATER MONITORING GUIDANCE MANUAL DATED DECEMBER 2001).



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TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN

SOIL EROSION & SEDIMENT CONTROL PLAN
PROPOSED CONDITIONS PLAN

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DRAWN BY: SWH	DATE: 7/20/19	ISSUED FOR BID:	SCALE: 1" = 100'
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STANDARD EROSION AND SEDIMENT POLLUTION CONTROL NOTES

- ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, ENVIRONMENTAL INSPECTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
- AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL COUNTY CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
- AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
- CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPs SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
- AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS IN THE AMOUNT NECESSARY TO COMPLETE THE FINISHED GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER. STOCKPILES SHALL BE LOCATED WITHIN THE LIMIT OF DISTURBANCE (LOD). FILTER SOCK OR SILT FENCE SHALL BE PLACED DOWNGRADIENT OF STOCKPILES.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
- ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 2801 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
- ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
- VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM LOTS AND ONTO ROADS AS IDENTIFIED ON THE PLANS.
- UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPs SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGARDING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- A LOG SHOWING DATES THAT E&S BMPs WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
- SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE AS NEEDED AND BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEPED INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
- ALL SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
- AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES ON COMPACTED SOILS PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
- ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED WITH LOCAL REQUIREMENTS OR CODES.
- ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
- FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
- FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
- SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
- ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
- IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
- PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
- E&S BMPs SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPs.
- AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPs MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPs. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPs SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL COUNTY CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
- FAILURE TO CORRECTLY INSTALL E&S BMPs, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPs MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
- CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
- ALL E&S CONVEYANCE CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
- UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE E&S CONVEYANCE CHANNELS SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONVEYED PAST THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
- E&S CONVEYANCE CHANNELS HAVING RIPRAP, RENO MATTRESS, OR GABION LININGS MUST BE SUFFICIENTLY OVER-EXCAVATED SO THAT THE DESIGN DIMENSIONS WILL BE PROVIDED AFTER PLACEMENT OF THE PROTECTIVE LINING.
- SEDIMENT BASINS AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE BASIN/TRAP OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATERS.
- SEDIMENT BASINS SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
- ANY DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITEE IN A PERMANENT MANNER SATISFACTORY TO THE MUNICIPALITY, LOCAL COUNTY CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
- UPON REQUEST, THE APPLICANT OR HIS CONTRACTOR SHALL PROVIDE AN AS-BUILT (RECORD DRAWING) FOR ANY SEDIMENT BASIN OR TRAP TO THE MUNICIPAL INSPECTOR, LOCAL COUNTY CONSERVATION DISTRICT OR THE DEPARTMENT.
- EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER, WITHIN 100' OF A STREAM OR WETLAND IN A HIGH QUALITY OR EXCEPTIONAL VALUE WATERSHED, WITHIN 50' OF A STREAM OR WETLAND IN A NON-HIGH QUALITY OR EXCEPTIONAL VALUE WATERSHED, AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
- FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS.

COMPRESSOR STATION SEQUENCE OF CONSTRUCTION

- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, ENVIRONMENTAL INSPECTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRE-CONSTRUCTION MEETING.
 - AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
 - *HOLD PRE-CONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL INSPECTORS, LOCAL COUNTY CONSERVATION DISTRICT (CCD), PADEP AND DESIGN ENGINEER.
 - *INSTALL ORANGE CONSTRUCTION FENCE AROUND AREAS TO BE PROTECTED.
 - *LOCATE STAGING AREAS, ACCESS POINTS AND LIMITS OF DISTURBANCE
 - INSTALL ROCK CONSTRUCTION ENTRANCE
 - *CLEAR AND GRUB AREAS NECESSARY TO INSTALL PERIMETER CONTROLS
 - INSTALL SEDIMENT BARRIERS (COMPOST FILTER SOCKS) AS SHOWN ON THE E&S PLAN
 - BEGIN CONSTRUCTION STAKING FOR GRADING
 - *GRADE THE SEDIMENT BASIN AS SHOWN IN THE E&S PLAN
 - BEGIN GRADING AND STRIP AND STOCKPILE TOPSOIL WITHIN THE AREA OF IMPROVEMENTS AND INSTALL SEDIMENT BARRIERS AROUND STOCKPILES
 - ROUGH GRADE THE COLLECTOR CHANNELS TO DIVERT MAJOR RUNOFF FROM PAD AREA TO SEDIMENT BASIN
 - *GRADE THE COMPRESSOR STATION PAD AND VALVE SITE, AND CONTINUE GRADING THE COLLECTOR CHANNELS AS THE PAD GRADING PROGRESSES.
 - AS CATCH BASINS AND PIPING ARE INSTALLED, PROVIDE INLET PROTECTION AND PREVENT SEDIMENT FROM ENTERING THE PIPE SYSTEM
 - ONCE THE UPSLOPE DRAINAGE AREA IS SUCCESSFULLY REVEGETATED, CONSTRUCT THE INFILTRATION BASIN AS SHOWN ON THE PCSM PLAN
 - STABILIZE SIDE SLOPES
 - ESTABLISH FINAL GRADE
 - SURFACE STABILIZATION, APPLY ANY PERMANENT STABILIZATION MEASURES IMMEDIATELY TO ANY DISTURBED AREAS WHERE WORK HAS REACHED FINAL GRADE
 - *UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATORS SHALL CONTACT THE LOCAL CCD FOR A FINAL INSPECTION.
 - AFTER FINAL GRADING AND TOPSOIL PLACEMENT IS COMPLETED, DISTURBED AREAS SHALL BE FERTILIZED, SEEDED AND MULCHED. SEED MIXTURES, FERTILIZER AND MULCH APPLICATION RATES AND DATES SHALL CONFORM TO THE TABLES PROVIDED ON THE PCSM/SR PLANS AND DETAIL SHEETS
 - AFTER SEEDING, FERTILIZING AND MULCHING IS COMPLETE, INSTALL EROSION CONTROL BLANKETS AS REQUIRED OR ORDERED OR ON SLOPES OF 3:1 OR GREATER
 - AFTER SITE IS PERMANENTLY STABILIZED AND UPON PADEP OR LOCAL CCD AND OWNER APPROVAL OF STABILIZATION AND RE-VEGETATION, REMOVE TEMPORARY E&S MEASURES AND STABILIZE AREAS DISTURBED BY REMOVAL.
 - *UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES, REMOVAL OF ALL TEMPORARY BMPs AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATORS SHALL CONTACT THE LOCAL CCD FOR A FINAL INSPECTION.
 - MAINTAIN E&S BMPs UNTIL SITE WORK IS COMPLETE AND UNIFORM 70% PERENNIAL VEGETATIVE COVER IS ESTABLISHED
 - REMOVE AND PROPERLY DISPOSE/RECYCLE E&S BMPs. REMOVE ORANGE CONSTRUCTION FENCE. REPAIR AND PERMANENTLY STABILIZE AREAS DISTURBED E&S REMOVAL UPON STABILIZATION OF UNIFORM 70% VEGETATIVE COVER.
- *INDICATES A CRITICAL STAGE OF PCSM INSTALLATION TO BE OBSERVED BY A LICENSED PROFESSIONAL OR DESIGNEE. CONTRACTOR TO PROVIDE THREE WORKING DAYS NOTICE TO DESIGN ENGINEER

THERMAL IMPACTS

DUE TO THE OVERALL NATURE OF THE PROJECT, THERMAL IMPACTS TO SURFACE WATERS ARE NOT ANTICIPATED. THE PRIMARY MEANS TO ADDRESS THERMAL IMPACTS ON THIS PROJECT IS TO LIMIT THE SIZE AND DURATION OF EXPOSED EARTH. STORMWATER RUNOFF ASSOCIATED WITH THE INSTALLATION OF THE COMPRESSOR UNITS WILL BE ROUTED THROUGH THE STORMWATER BMPs DESIGNED TO RETAIN AND INFILTRATE THE FIRST SURGE OF WATER FROM THE SITE. THE FIRST SURGE OF WATER WILL BE THE WARMEST WATER FOR THE DURATION OF THE STORM EVENT AND WILL QUICKLY COOL AS THE STORM EVENT PROGRESSES. THE BMPs ARE DESIGNED TO CAPTURE AND INFILTRATE THIS WARMEST SURGE OF STORMWATER. BASED ON ROUTING CALCULATIONS, STORMWATER IS NOT DISCHARGED FROM THE BMPs FOR THE FIRST 12 HOURS DURING A 100-YEAR/24-HOUR STORM EVENT. THE RETENTION PERIOD IS LONGER FOR LESS INTENSE STORMS. THEREFORE, THROUGH THESE MEASURES, THERE IS NO SIGNIFICANT THERMAL IMPACT TO THE RECEIVING WATERS ANTICIPATED.

WETLAND RESTORATION METHODS

CLEARING AND GRADING

- LIMIT CONSTRUCTION ACTIVITY AND GROUND DISTURBANCE IN WETLAND AREAS TO A CONSTRUCTION ROW WIDTH AS SHOWN ON THE CONSTRUCTION PLANS.
- WETLAND BOUNDARIES AND BUFFERS MUST BE CLEARLY MARKED IN THE FIELD WITH SIGNS AND/OR HIGHLY VISIBLE FLAGGING UNTIL CONSTRUCTION-RELATED GROUND DISTURBING ACTIVITIES ARE COMPLETE.
- RESTRICT EXTRA WORK AREAS (SUCH AS STAGING AREAS AND ADDITIONAL SPOIL STORAGE AREAS) TO THOSE SHOWN ONLY ON THE CONSTRUCTION PLANS. ALL EXTRA WORK AREAS MUST BE LOCATED AT LEAST 50 FEET AWAY FROM WETLAND BOUNDARIES, EXCEPT WHERE THE ADJACENT UPLAND CONSISTS OF ACTIVELY CULTIVATED OR ROTATED CROPLAND OR OTHER DISTURBED LAND. STOCKPILE SOIL OR SUBSOIL OUTSIDE OF THE WETLAND BOUNDARIES TO THE EXTENT PRACTICABLE BASED ON CONSIDERATIONS OF DURATION, TOPOGRAPHY, ACCESS, AND AVAILABILITY OF ADJACENT WORKSPACE.
- USE TIMBER MATS, PREFABRICATED EQUIPMENT MATS OR TERRA MATS WITHIN WETLAND ASSOCIATED WITH STAGING AREAS.

TEMPORARY EROSION AND SEDIMENT CONTROL

- INSTALL SEDIMENT BARRIERS IMMEDIATELY AFTER CLEARING AND PRIOR TO GROUND DISTURBANCE AT THE FOLLOWING LOCATIONS:
A. ALONG THE EDGE OF THE LOD, WHERE THE LOD SLOPES TOWARD THE WETLAND, TO PROTECT ADJACENT OFF ROW WETLAND; AND
B. ALONG THE EDGE OF THE LOD AS NECESSARY TO CONTAIN SPOIL AND SEDIMENT WITHIN THE LOD THROUGH WETLANDS.
- MAINTAIN ALL SEDIMENT BARRIERS THROUGHOUT CONSTRUCTION AND REINSTALL AS NECESSARY (SUCH AS AFTER BACKFILLING OF THE TRENCH) UNTIL REPLACED BY PERMANENT EROSION CONTROLS OR RESTORATION OF ADJACENT UPLAND AREAS IS COMPLETE.
- DEPTH OF TOPSOIL SEGREGATION SHOULD BE 12 INCHES, IF PRESENT, UNLESS OTHERWISE INDICATED BY THE LANDOWNER IF RELATING TO AGRICULTURAL LAND.

CLEANUP AND RESTORATION

- REVEGETATE THE ROW WITH ANNUAL RYEGRASS AT 40 LBS / ACRE PURE LIVE SEED AND WITH THE RECOMMENDED WETLAND SEED MIX, UNLESS STANDING WATER IS PRESENT.
- DO NOT USE LIME, FERTILIZER OR MULCH IN WETLAND AREAS.
- IN THE EVENT THAT FINAL SEEDING AND MULCHING IS DEFERRED MORE THAN 20 DAYS AFTER THE TRENCH IS BACKFILLED, ALL SLOPES ADJACENT TO WETLANDS SHALL BE BLANKETED FOR A MINIMUM OF 100 FEET ON EACH SIDE OF THE CROSSING.
- REMOVE ALL EQUIPMENT MATS UPON COMPLETION OF CONSTRUCTION.
- DEVELOP SPECIFIC PROCEDURES IN COORDINATION WITH THE APPROPRIATE LAND MANAGEMENT OR STATE AGENCY, WHERE NECESSARY, TO PREVENT THE INVASION OR SPREAD OF UNDESIRABLE EXOTIC VEGETATION (SUCH AS PURPLE LOOSE STRIFE AND PHRAGMITES).
- ENSURE THAT ALL DISTURBED AREAS PERMANENTLY REVEGETATE.
- REMOVE TEMPORARY SEDIMENT BARRIERS LOCATED AT THE BOUNDARY BETWEEN WETLAND AND ADJACENT UPLAND AREAS AFTER UPLAND REVEGETATION AND STABILIZATION OF ADJACENT UPLAND AREAS ARE SUCCESSFUL.

RESPONSIBILITIES FOR FILL MATERIALS

IF THE SITE WILL NEED TO HAVE FILL IMPORTED FROM AN OFF SITE LOCATION, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND THE DETERMINATION OF CLEAN FILL WILL IN MOST CASES RESIDE WITH THE OPERATOR.

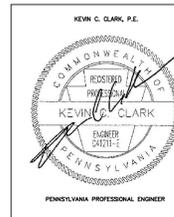
IF THE SITE WILL HAVE EXCESS FILL THAT WILL NEED TO BE EXPORTED TO AN OFF SITE LOCATION, THE RESPONSIBILITY OF CLEAN FILL DETERMINATION AND ENVIRONMENTAL DUE DILIGENCE RESTS ON THE APPLICANT.

IF ALL CUT AND FILL MATERIALS WILL BE USED ON THE SITE, A CLEAN FILL DETERMINATION IS NOT REQUIRED BY THE OPERATOR UNLESS THERE IS A BELIEF THAT A SPILL OR RELEASE OF A REGULATED SUBSTANCE OCCURRED ON SITE.
APPLICANTS AND/OR OPERATORS MUST USE ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT THE FILL MATERIAL ASSOCIATED WITH THIS PROJECT QUALIFIES AS CLEAN FILL. DEFINITIONS OF CLEAN FILL AND ENVIRONMENTAL DUE DILIGENCE ARE PROVIDED BELOW. ALL FILL MATERIAL MUST BE USED IN ACCORDANCE WITH THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL," DOCUMENT NUMBER 258 2182 773. A COPY OF THIS POLICY IS AVAILABLE ONLINE AT WWW.DEPEWEB.STATE.PA.US.

CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE.)

ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL."

FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE.



		REVISIONS					
NO.	DATE	BY	DESCRIPTION	I.W.O. NO.	CHK.	APP.	
1	5/6/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZED WETLAND IMPACTS AND PER PADEP COMMENTS				

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN

SOIL EROSION & SEDIMENT CONTROL PLAN
NOTES SHEET 1

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DRAWN BY: SWH	DATE: 7/29/19	ISSUED FOR BID:	SCALE:
CHECKED BY: KMC	DATE: 8/19/19	ISSUED FOR CONSTRUCTION:	REVISION: 1
APPROVED BY: KCC	DATE: 9/20/19	DRAWING NUMBER:	SHEET 4
I.W.O. 1211227	RID:	26-1000-70-28-D	OF 10

MEASURES OF RECYCLING & DISPOSAL OF MATERIALS FROM THE PROJECT AREA

THE RESTORATION OF THE SITE WILL REQUIRE THE REMOVAL OF THE TEMPORARY MATERIALS. THE TEMPORARY MATERIALS INCLUDE, BUT MAY NOT BE LIMITED TO, STONE SURFACES AND ASSOCIATED GEOTEXTILES. THE CONTRACTORS ARE REQUIRED TO DISPOSE OF THE MATERIALS AT SUITABLE DISPOSALS OR RECYCLING SITES AND IN COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

CONTRACTORS ARE REQUIRED TO INVENTORY AND MANAGE THEIR CONSTRUCTION SITE MATERIALS. THE GOAL IS TO BE AWARE OF THE MATERIALS ON-SITE, ENSURE THEY ARE PROPERLY MAINTAINED, USED, AND DISPOSED OF, AND TO MAKE SURE THE MATERIALS ARE NOT EXPOSED TO STORMWATER.

MATERIALS COVERED

THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON-SITE DURING CONSTRUCTION (NOTE: THIS LIST IS NOT AN ALL-INCLUSIVE LIST AND THE MATERIALS MANAGEMENT PLAN CAN BE MODIFIED TO ADDRESS ADDITIONAL MATERIALS USED ON-SITE):

- ACIDS
- DETERGENTS
- FERTILIZERS (NITROGEN/PHOSPHORUS)
- HYDROSEEDING MIXTURES
- PETROLEUM BASED PRODUCTS
- SANITARY WASTES
- SOIL STABILIZATION ADDITIVES
- SOLIDS
- SOLVENTS
- OTHER (LIST HERE):

THESE MATERIALS MUST BE STORED AS APPROPRIATE AND SHALL NOT CONTACT STORM OR NON-STORMWATER DISCHARGES. CONTRACTOR SHALL PROVIDE A WEATHER PROOF CONTAINER TO STORE CHEMICALS OR ERODIBLE SUBSTANCES THAT MUST BE KEPT ON THE SITE. CONTRACTOR IS RESPONSIBLE FOR READING, MAINTAINING, AND MAKING EMPLOYEES AND SUBCONTRACTORS AWARE OF MATERIAL SAFETY DATA SHEETS (MSDS).

MATERIAL MANAGEMENT PRACTICES

THE FOLLOWING ARE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORMWATER RUNOFF.

1. GOOD HOUSEKEEPING PRACTICES

THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ON SITE DURING CONSTRUCTION:
 STORE ONLY ENOUGH MATERIAL REQUIRED TO DO THE JOB.
 STORE MATERIALS IN A NEAT, ORDERLY MANNER.
 STORE CHEMICALS IN WATERTIGHT CONTAINERS OR IN A STORAGE SHED, UNDER A ROOF, COMPLETELY ENCLOSED, WITH APPROPRIATE SECONDARY CONTAINMENT TO PREVENT SPILL OR LEAKAGE.
 DRIP PANS SHALL BE PROVIDED UNDER DISPENSERS.
 SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
 MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
 INSPECTIONS WILL BE PERFORMED TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS.
 COVER AND BERM LOOSE STOCKPILED CONSTRUCTION MATERIALS THAT ARE NOT ACTIVELY BEING USED (I.E. SOIL, SPOILS, AGGREGATE, ETC.).
 MINIMIZE EXPOSURE OF CONSTRUCTION MATERIALS TO PRECIPITATION.
 MINIMIZE THE POTENTIAL FOR OFF-SITE TRACKING OF LOOSE CONSTRUCTION AND LANDSCAPE MATERIALS.

2. HAZARDOUS PRODUCTS

THESE PRACTICES WILL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS. MSDS FOR EACH SUBSTANCE WITH HAZARDOUS PROPERTIES THAT IS USED ON THE JOB SITE(S) WILL BE OBTAINED AND USED FOR THE PROPER MANAGEMENT OF POTENTIAL WASTES THAT MAY RESULT FROM THESE PRODUCTS. A MSDS WILL BE POSTED IN THE IMMEDIATE AREA WHERE SUCH PRODUCT IS STORED AND/OR USED AND ANOTHER COPY OF EACH MSDS WILL BE MAINTAINED IN A FILE AT THE JOB SITE CONSTRUCTION TRAILER OFFICE. EACH EMPLOYEE WHO MUST HANDLE A SUBSTANCE WITH HAZARDOUS PROPERTIES WILL BE INSTRUCTED ON THE USE OF MSDS AND THE SPECIFIC INFORMATION IN THE APPLICABLE MSDS FOR THE PRODUCT HE/SHE IS USING, PARTICULARLY REGARDING SPILL CONTROL TECHNIQUES.

- PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS WITH THE ORIGINAL LABELS IN LEGIBLE CONDITION.
- ORIGINAL LABELS AND MSDS WILL BE PRODUCED AND USED FOR EACH MATERIAL.
- IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL/STATE/FEDERAL RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

3. HAZARDOUS WASTES

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF BY THE CONTRACTOR IN THE MANNER SPECIFIED BY LOCAL, STATE, AND/OR FEDERAL REGULATIONS AND BY THE MANUFACTURER OF SUCH PRODUCTS. SITE PERSONNEL WILL BE INSTRUCTED.

4. CONCRETE AND OTHER WASH WATERS

PREVENT DISPOSAL OF RINSE, WASH WATERS, OR MATERIALS ON IMPERVIOUS OR PERVIOUS SURFACES, INTO STREAMS, WETLANDS OR OTHER WATER BODIES.

CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE, BUT ONLY EITHER (1) SPECIFICALLY DESIGNATED DIKED AREAS WHICH HAVE BEEN PREPARED TO PREVENT CONTACT BETWEEN THE CONCRETE AND/OR WASHOUT AND SOIL AND STORMWATER HAVING THE POTENTIAL TO BE DISCHARGED FROM THE SITE OR (2) IN LOCATIONS WHERE WASTE CONCRETE CAN BE POURED INTO FORMS TO MAKE RIPRAP OR OTHER USEFUL CONCRETE PRODUCTS.

THE HARDENED RESIDUE FROM THE CONCRETE WASHOUT DIKED AREAS WILL BE DISPOSED OF IN THE SAME MANNER AS OTHER NON-HAZARDOUS CONSTRUCTION WASTE MATERIALS OR MAY BE BROKEN UP AND USED ON THE SITE AS DEEMED APPROPRIATE BY THE CONTRACTOR AND GEOTECHNICAL ENGINEER. THE CONTRACTOR WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

ALL CONCRETE WASHOUT AREAS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE AREA CONTRIBUTING TO STORMWATER DISCHARGE IS NEGLIGIBLE. IF REQUIRED, ADDITIONAL BMPs MUST BE IMPLEMENTED TO PREVENT CONCRETE WASTES FROM CONTRIBUTING TO STORMWATER DISCHARGES. THE LOCATION OF THE CONCRETE WASHOUT AREA(S) MUST BE IDENTIFIED, BY THE CONTRACTOR/JOB SITE SUPERINTENDENT, ON THE JOB SITE COPY OF THE EROSION AND SEDIMENT CONTROL PLAN(S) IN THIS ESCP.

5. SANITARY WASTES

ALL SANITARY WASTE UNITS WILL BE LOCATED IN AN AREA WHERE THE LIKELIHOOD OF THE UNIT CONTRIBUTING TO STORMWATER DISCHARGES IS NEGLIGIBLE. ADDITIONAL BMPs MUST BE IMPLEMENTED, SUCH AS CONTAINMENT TRAYS (PROVIDED BY THE RENTAL COMPANY) OR SPECIAL CONTAINMENT CREATED WITH 2"x4" LUMBER, IMPERVIOUS PLASTIC, AND GRAVEL. THE LOCATION OF THE SANITARY WASTE UNITS MUST BE IDENTIFIED ON THE JOB SITE COPY OF THE EROSION AND SEDIMENT CONTROL PLAN(S), IN THIS ESCP, BY THE CONTRACTOR/JOB SITE SUPERINTENDENT.

6. SOLID AND CONSTRUCTION WASTES

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL COMPLY WITH ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS. THE DUMPSTER/CONTAINER LIDS SHALL BE CLOSED AT THE END OF EVERY BUSINESS DAY AND DURING RAIN EVENTS. APPROPRIATE MEASURES SHALL BE TAKEN TO PREVENT DISCHARGES FROM WASTE DISPOSAL CONTAINERS TO THE RECEIVING WATER.

7. CONSTRUCTION ACCESS

A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED ROADS ADJACENT TO THE SITE ENTRANCE WILL BE INSPECTED DAILY AND SWEEP AS NECESSARY TO REMOVE ANY EXCESS MUD, DIRT, OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARP/AULIN AS NECESSARY.

8. PETROLEUM PRODUCTS

ON-SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. PETROLEUM STORAGE TANKS ON SITE WILL HAVE A DIKE OR BERM CONTAINMENT STRUCTURE CONSTRUCTED AROUND IT TO CONTAIN SPILLS WHICH MAY OCCUR (CONTAINMENT VOLUME TO BE 110% OF VOLUME STORED). THE DIKE OR BERMED AREA SHALL BE LINED WITH AN IMPERVIOUS MATERIAL SUCH AS A HEAVY DUTY PLASTIC SHEET. DRIP PANS SHALL BE PROVIDED FOR ALL DISPENSERS. ANY ASPHALT SUBSTANCES USED ON THE SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

9. FERTILIZERS AND LANDSCAPE MATERIALS

FERTILIZERS WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO MINIMIZE THE POTENTIAL FOR EXPOSURE TO STORMWATER. STORAGE WILL BE UNDER COVER. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO MINIMIZE THE POTENTIAL FOR SPILLS. THE BIN SHALL BE LABELED APPROPRIATELY.

CONTAIN STOCKPILED MATERIALS, SUCH AS BUT NOT LIMITED TO, MULCHES, TOP SOIL, ROCKS AND GRAVEL, AND DECOMPOSED GRANITE, WHEN THEY ARE NOT ACTIVELY BEING USED.

APPLY ERODIBLE LANDSCAPE MATERIAL AT QUANTITIES AND APPLICATION RATES ACCORDING TO MANUFACTURER RECOMMENDATIONS OR BASED ON WRITTEN SPECIFICATIONS BY KNOWLEDGEABLE AND EXPERIENCE FIELD PERSONNEL. DISCONTINUE THE APPLICATION OF ANY ERODIBLE LANDSCAPE MATERIAL WITHIN TWO DAYS PRIOR TO A FORECASTED RAIN EVENT OR DURING PERIODS OF PRECIPITATION.

10. PAINTS, PAINT SOLVENTS AND CLEANING SOLVENTS

CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT IN USE. EXCESS PAINT AND SOLVENTS WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR LOCAL/STATE/FEDERAL REGULATIONS.

11. CONTAMINATED SOILS

ANY CONTAMINATED SOILS (RESULTING FROM SPILLS OF MATERIALS WITH HAZARDOUS PROPERTIES) WHICH MAY RESULT FROM CONSTRUCTION ACTIVITIES WILL BE CONTAINED AND CLEANED UP IMMEDIATELY IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

12. OFF-SITE WASTE AND BORROW AREAS

ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL COUNTY CONSERVATION DISTRICT OF PADEP FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ANY EXCESS MATERIAL AND TO DEVELOP A PLAN THAT MEETS THE CONDITIONS OF CHAPTER 102, NPDES PERMIT CONDITIONS, AND/OR OTHER STATE AND FEDERAL REGULATIONS.

GENERAL MAINTENANCE NOTES FOR ALL BMPs:

ROUTINE MAINTENANCE INSPECTIONS WILL BE REQUIRED TO ENSURE THE PERFORMANCE OF ALL THE SEDIMENT CONTROL BMP DEVICES. AT A MINIMUM, ALL STRUCTURES AND DEVICES SHALL BE INSPECTED ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT. THIS INSPECTION SHALL BE FOLLOWED WITH A REPAIR SCHEDULE OF ALL NOTED DEFICIENCIES. VEGETATION PROGRESS SHALL ALSO BE INCLUDED IN THIS INSPECTION. VOID AREAS SHALL PROMPTLY BE RESEDED AND MULCHED TO ESTABLISH PROTECTION.

UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPs MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RESETTING, MUST BE DONE IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS TO THOSE INSTALLED, WILL BE REQUIRED.

SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF WITHIN THE LIMIT OF DISTURBANCE IN LANDSCAPE AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN STOCKPILES AREAS.

ALL CHANNELS MUST BE KEPT FREE OF OBSTRUCTIONS SUCH AS FILL, FALLEN LEAVES & WOODY DEBRIS, ACCUMULATED SEDIMENT, AND CONSTRUCTION MATERIALS/WASTES WITH EXCEPTION TO OTHER REQUIRED BMPs (I.E., CHECK DAMS). CHANNELS SHOULD BE KEPT MOWED AND/OR FREE OF ALL WEEDY, BRUSHY OR WOODY GROWTH. ANY UNDERGROUND UTILITIES RUNNING ACROSS/ THROUGH THE CHANNEL(S) SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL(S) REPAIRED AND STABILIZED PER THE CHANNEL SECTION DETAIL.

SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEEPED INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.

ALL NECESSARY REPAIRS WILL BE MADE IMMEDIATELY.

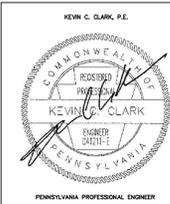
MAINTENANCE SCHEDULE			
CONTROL MEASURE	INSPECT	PROBLEMS TO LOOK FOR	POSSIBLE REMEDIES
EROSION CONTROL BLANKET	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	TORN OR LOOSE STAPLED AREAS. VEGETATION GROWTH. BLANKET DESTROYED OR DAMAGED.	REMOVE AND REPLACE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REGRADE AND REPAIR ANY UNDERMINED OR WASHED OUT AREAS. RE-SEED.
PUMPED WATER FILTER BAG	BEFORE AND AFTER EACH USE	TORN FABRIC, TEARS OR BREACHES. SEDIMENT ESCAPING WITH PURGE WATER. MORE THAN 50% FILLED WITH SEDIMENT.	REPLACE FILTER BAG. REMOVE SEDIMENT, SPREAD OVER SITE.
ROCK CONSTRUCTION ENTRANCE	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	STONE THICKNESS NOT CONSTANTLY MAINTAINED. SEDIMENT ON PUBLIC ROADWAY.	ADD ROCK TO BRING TO SPECIFIED DIMENSIONS. SWEEP MATERIAL BACK TO PROJECT SITE. DO NOT WASH ROADWAY WITH WATER.
ROCK FILTER OUTLET	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	LINING WASHED AWAY. SEDIMENT AT 1/3 HEIGHT OF BARRIER. RUNOFF ESCAPING AROUND BARRIER. CLOGGING.	RESHAPE AS NECESSARY AND REPLACE TOP LAYER WITH CLEAN STONE. REPLACE RIPRAP WITH LARGER SIZE RIPRAP. REBUILD/EXTEND BARRIER. WASH OR REPLACE SEDIMENT LADEN STONE.
VEGETATION	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	SEDIMENT AT TOE-OF-SLOPE. RILLS & GULLIES FORMING. BARE SOIL PATCHES.	CHECK FOR TOE-OF-SLOPE DIVERSION & INSTALL, IF NEEDED. FILL RILLS AND RE-GRADE GULLIED SLOPES. RE-SEED, FERTILIZE, LIME AND RE-MULCH.
CHANNELS	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	ERODED VEGETATION / LINING, DEBRIS ACCUMULATION	REPAIR / REPLACE LINING, REMOVE DEBRIS
COMPOST FILTER SOCK	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	TORN SOCKS. SEDIMENT ACCUMULATION WASHOUTS	REPLACE SOCK. REMOVE ACCUMULATED SEDIMENT. INCREASE SOCK SIZE
LEVEL SPREADER	QUARTERLY FOR 2 YEARS. SEMI-ANNUALLY THEREAFTER AND AFTER EVERY RAINFALL EVENT >1	RILLS AND GULLIES FORMING. LEVEL SPREADER FAILURE	STOP EROSION, REPAIR GULLIED AREAS, RETROFIT/REBUILD LEVEL SPREADER
SEDIMENTATION BASIN	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	EROSION, PIPING AND SETTLEMENT ON EMBANKMENTS, SPILLWAYS AND OUTLETS, ACCUMULATED SEDIMENT, DAMAGED INLETS, DISPLACED RIPRAP	REMOVE SEDIMENT, REPAIR SPILLWAYS/OUTLETS/INLETS, REMOVE DISPLACED RIPRAP
INLET FILTER BAG	ONCE A WEEK AND AFTER EVERY RUNOFF EVENT	REDUCED FLOW CAPACITY, ACCUMULATED SEDIMENT	CLEAN/REPLACE BAGS, REMOVE SEDIMENT

* REFER TO BMP DETAIL FOR ADDITIONAL MAINTENANCE REQUIREMENTS AND REMEDIES.

RESOLUTION TO SOIL LIMITATIONS

TRANSKO PROPOSES THE FOLLOWING RESOLUTIONS TO COMPENSATE FOR SOIL LIMITATIONS SUMMARIZED IN TABLE 3 ABOVE:

1. TO OFFSET THE CAVING OF CUTBANKS, TRENCHING OPERATIONS WILL BE CONDUCTED IN ACCORDANCE WITH THE OSHA TECHNICAL MANUAL FOR TRENCHING.
2. PREVENTATIVE COATINGS SHALL BE USED TO PREVENT CORROSION OF CONCRETE AND/ OR STEEL.
3. WHEN BEDROCK IS ENCOUNTERED IT WILL BE REMOVED BY MECHANICAL METHODS OR BLASTING. BLASTING WILL CONFORM WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. THIS IS NOT ANTICIPATED.
4. PRECAUTIONS WILL BE TAKEN TO PREVENT SLOPE FAILURE WHEN WORKING WITHIN LOW STRENGTH SOILS BY FLATTENING CUT / FILL SLOPES, NOT OVERLOADING, MAINTAINING LATERAL SUPPORT, AND PREVENTING SATURATION OF SOILS. USE OF THESE SOILS WILL BE AVOIDED FOR ROADWAY CONSTRUCTION.
5. FOR SOILS PRONE TO FLOODING, SLOW PERCOLATION, PONDING WETNESS, HAVE A SEASONAL HIGH WATER TABLE, OR ARE HYDRIC, EXCAVATIONS IN SOILS THAT HAVE THESE CHARACTERISTICS WILL LIKELY ENCOUNTER WATER, DEWATER WITH APPROPRIATE MEANS SUCH AS PUMP WATER FILTER BAGS, SEDIMENT TRAPS, ETC.
6. SOILS THAT HAVE THE POTENTIAL TO SWELL, SHRINK, OR HEAVE DUE TO FROST ACTION MAY CAUSE DAMAGE TO ROADWAYS OR PADS WHERE FOUNDATIONS ARE CRITICAL REMOVAL AND REPLACEMENT OF SOILS WITH SUITABLE MATERIAL MAY BE REQUIRED.
7. IN SOILS THAT ARE A POOR SOURCE OF TOPSOIL, DROUGHTY OR PRONE TO WETNESS, SOIL TESTING IS ENCOURAGED TO DETERMINE THE APPROPRIATE APPLICATIONS OF SOIL AMENDMENTS TO PROMOTE GROWTH. SOILS ONSITE THAT ARE FAIR SOURCES OF TOPSOIL, WILL BE IDENTIFIED, STRIPPED AND STOCKPILED FOR USE DURING RESTORATION.
8. FOR THOSE SOILS THAT ARE EASILY ERODIBLE, PROVIDE PROTECTIVE LINING, SEEDING AND MULCHING, EROSION CONTROL BLANKETS (ROLLS OR HYDRAULICALLY APPLIED), TRACKING SLOPES, UPSTREAM DIVERSIONS, WATERBARS, ETC., TO MINIMIZE EROSION OF THE SOILS.



REVISIONS						
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	5/04/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZED WETLAND IMPACTS AND PER PADEP COMMENTS			

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
 SOIL EROSION & SEDIMENT CONTROL PLAN

SOIL EROSION & SEDIMENT CONTROL PLAN
 NOTES SHEET 2

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DRAWN BY: SWH	DATE: 7/29/19	ISSUED FOR BID:	SCALE:
CHECKED BY: KMC	DATE: 9/15/19	ISSUED FOR CONSTRUCTION:	REVISION: 1
APPROVED BY: KCC	DATE: 9/20/19		
WO: 1211227	RID:	DRAWING NUMBER: 26-1000-70-28-D	SHEET 5 OF 10

**TABLE 11.3
Plant Tolerances of Soil Limitation Factors**

Species	Growth Habit ¹	Tolerates					Minimum Seed Specifications ²				
		Wet Soil	Dry Site	Low Fertility	Acid Soil (pH 5-5.5) ³	Purity (%)	Ready Germ (%)	Hard Seed (%)	Total Germ (%)	Seeds/lb (1,000s)	
Warm-Season Grasses											
Deertongue	bunch	yes	yes	yes	yes	95	75	75	250		
Weeping lovegrass	bunch	no	yes	yes	yes	97	75	75	1,500		
Switchgrass	bunch	yes	yes	yes	yes			(60 PLS)	390		
Big bluestem	bunch	no	yes	yes	yes			(60 PLS)	150		
Cool-Season Grasses											
Tall Fescue	bunch	yes	no	yes	no	95	80	80	227		
Redtop	sod	yes	yes	yes	yes	92	80	80	5,000		
Fine fescues	sod	no	no	yes	no	95	80	80	400		
Perennial ryegrass	bunch	yes	no	no	no	95	85	85	227		
Annual ryegrass	bunch	yes	no	yes	no	95	85	85	227		
Kentucky bluegrass	sod	no	no	no	no	85	75	75	2,200		
Reed canarygrass	sod	yes	yes	yes	no	95	70	70	520		
Orchardgrass	bunch	yes	yes	yes	yes	95	80	80	654		
Timothy	bunch	yes	no	yes	yes	95	80	80	1,230		
Smooth bromegrass	sod	no	yes	yes	no	95	80	80	136		
Legumes⁵											
Birdsfoot trefoil ⁶	bunch	yes	no	yes	yes	98	80	20	400		
Flatpea	sod	no	no	yes	yes	98	55	20	75		
Serecia lespedeza	bunch	no	yes	yes	yes	98	60	20	80		
Cereals											
Winter wheat	bunch	no	no	no	no	98	85	85	15		
Winter rye	bunch	no	no	yes	yes	98	85	85	18		
Spring oats	bunch	no	no	no	no	98	85	85	13		
Sundagrass	bunch	no	yes	no	no	98	85	85	55		
Japanese millet	bunch	yes	no	yes	yes	98	80	80	155		

- Growth habit refers to the ability of the species to either form a dense sod by vegetative means (stolons, rhizomes, or roots) or remain in a bunch or single plant form. If seeded heavily enough, even bunch formers can produce a very dense stand. This is sometimes called a sod, but not in the sense of a sod formed by vegetative means.
- Once established, plants may grow at a somewhat lower pH, but cover generally is only adequate at pH 6.0 or above.
- Minimum seed lots are truly minimum, and seed lots to be used for revegetation purposes should equal or exceed these standards. Thus, deertongue grass should germinate 75% or better. Crownvetch should have at least 40% readily germinable seed and 30% hard seed. Commonly, seed lots are available that equal or exceed minimum specifications. Remember that disturbed sites are adverse for plant establishment. Ready germination refers to seed that germinates during the period of the germination test and that would be expected, if conditions are favorable, to germinate rapidly when planted. The opposite of ready germination is dormant seed, of which hard seed is one type.
- Switchgrass seed is sold only on the basis of PLS.
- Need specific legume inoculant. Inoculant suitable for garden peas and sweetpeas usually is satisfactory for flatpea.
- Birdsfoot trefoil is adapted over the entire state, except in the extreme southeast where crown and root rots may injure stands.

Penn State, "Erosion Control and Conservation Plantings on Noncropland,"

**TABLE 11.4
Recommended Seed Mixtures**

Mixture Number	Species	Seeding Rate - Pure Live Seed ¹	
		Most Sites	Adverse Sites
1 ²	Spring oats (spring), or Annual ryegrass (spring or fall), or Winter wheat (fall), or Winter rye (fall)	64	96
		10	15
		90	120
		56	112
2 ³	Tall fescue, or Fine fescue, or Kentucky bluegrass, plus Redtop ⁴ , or Perennial ryegrass	60	75
		35	40
		25	30
		3	3
3	Birdsfoot trefoil, plus Tall fescue	6	10
		30	35
		6	10
4	Birdsfoot trefoil, plus Reed canarygrass	10	15
8	Flatpea, plus Tall fescue, or Perennial ryegrass	20	30
		20	30
		20	25
		10	20
9 ⁶	Serecia lespedeza, plus Tall fescue, plus Redtop ⁴	20	25
		3	3
		40	60
10	Tall fescue, plus Fine fescue	10	15
		15	20
11	Deertongue, plus Birdsfoot trefoil	6	10
		15	20
12 ⁷	Switchgrass, or Big Bluestem, plus Birdsfoot trefoil	15	20
		15	20
		6	10
13	Orchardgrass, or Smooth bromegrass, plus Birdsfoot trefoil	20	30
		25	35
		6	10

Penn State, "Erosion Control and Conservation Plantings on Noncropland"

- PLS is the product of the percentage of pure seed times percentage germination divided by 100. For example, to secure the actual planting rate for switchgrass, divide 12 pounds PLS shown on the seed tag. Thus, if the PLS content of a given seed lot is 35%, divide 12 PLS by 0.35 to obtain 34.3 pounds of seed required to plant one acre. All mixtures in this table are shown in terms of PLS.
- If high-quality seed is used, for most sites seed spring oats at a rate of 2 bushels per acre, winter wheat at 11.5 bushels per acre, and winter rye at 1 bushel per acre. If germination is below 90%, increase these suggested seeding rates by 0.5 bushel per acre.
- This mixture is suitable for frequent mowing. Do not cut shorter than 4 inches.
- Keep seeding rate to that recommended in table. These species have many seeds per pound and are very competitive. To seed small quantities of small seeds such as weeping lovegrass and reedtop, dilute with dry sawdust, sand, rice hulls, buckwheat hulls, etc.
- Use for highway slopes and similar sites where the desired species after establishment is crownvetch.
- Use only in extreme southeastern or extreme southwestern Pennsylvania. *Serecia lespedeza* is not well adapted to most of PA.
- Do not mow shorter than 9 to 10 inches.
- Seed mixtures containing crown vetch should not be used in areas adjacent to wetlands or stream channels due to the invasive nature of this species.

**TABLE 11.5
Recommended Seed Mixtures for Stabilizing Disturbed Areas**

Site Condition	Nurse Crop	Seed Mixture (Select one mixture)
Slopes and Banks (not mowed) Well-drained Variable drainage	1 plus 1 plus	3, 8, or 12 ¹ 3
Slopes and Banks (mowed) Well-drained	1 plus	2 or 10
Slopes and Banks (grazed/hay) Well-drained	1 plus	2, 3, or 13
Gullies and Eroded Areas	1 plus	3, or 12 ¹
Erosion Control Facilities (BMPs) Sod waterways, spillways, frequent water flow areas Drainage ditches	1 plus	2, 3, or 4
Shallow, less than 3 feet deep	1 plus	2, 3, or 4
Deep, not mowed	1 plus	
Pond banks, dikes, levees, dams, diversion channels, and occasional water flow areas	1 plus	2 or 3
Mowed areas	1 plus	
Non-mowed areas	1 plus	
For hay or silage on diversion channels and occasional water flow areas	1 plus	3 or 13
Highways ² Non-mowed areas		
Well-drained	1 plus	8, 9, or 10
Variable drained	1 plus	3
Poorly drained	1 plus	3 or 4
Areas mowed several times per year	1 plus	2, 3, or 10
Utility Right-of-way Well-drained	1 plus	8, or 12 ¹
Variable drained	1 plus	3
Well-drained areas for grazing/hay	1 plus	2, 3, or 13
Aster Disposal Areas	1 plus	3 or 4
Sanitary Landfills	1 plus	3, 11 ¹ , or 12 ¹
Surface mines Spoils, mine wastes, fly ash, slag, settling basin Residues and other severely disturbed areas (lime to soil test) Severely disturbed areas for grazing/hay	1 plus	3, 4, 8, 9, 11 ¹ , or 12 ¹ 3 or 13

Penn State, "Erosion Control and Conservation Plantings on Noncropland"

- For seed mixtures 11 and 12, only use spring oats or weeping lovegrass (included in mix) as nurse crop.
- Contact the Pennsylvania Department of Transportation district roadsides specialist for specific suggestions on treatment techniques and management practices.
- Seed mixtures containing crown vetch should not be used in areas adjacent to wetlands or stream channels due to the invasive nature of this species.

ERNST RIPARIAN BUFFER MIX - ERNMIX 178

PERCENTAGE OF MIX COMPOSITION	SCIENTIFIC NAME	COMMON NAME
30.0%	PANICUM CLANDESTINUM	DEERTONGUE
20.0%	ELYMUS VIRGINICUS	VIRGINIA WILDRYE
11.8%	ANDROPOGON GERARDII	BIG BLUESTEM
10.5%	SORGHASTRUM NUTANS	INDIANAGRASS
5.0%	PANICUM VIRGATUM	SWITCHGRASS
4.0%	CHAMAECRISTA FASCICULATA	PARTIDGE PEA
4.0%	VERBENA HASTATA	BLUE VERVAIN
3.0%	JUNCUS EFFUSUS	SOFT RUSH
3.0%	RUDBECKIA HIRTA	BLACKEYED SUSAN
2.0%	HELOPSIS HELIANTHOIDES	OXEYE SUNFLOWER
1.0%	ASCLEPIAS INCARNATA	SWAMP MILKWEED
0.7%	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER
0.7%	ASTER UMBELLATUS	FLAT TOPPED WHITE ASTER
0.7%	EUPATORIUM PERFOOLIATUM	BONASET
0.5%	AGROSTIS PERENNANS	AUTUMN BENTGRASS
0.5%	HELENIUM AUTUMNALE	COMMON SNEEZEWEED
0.5%	MONARDA FISTULOSA	WILD BERGAMOT
0.5%	VERNONIA NOVEBORACENSIS	NEW YORK IRONWEED
0.4%	PYCNANTHEMUM TENUIFOLIUM	NARROW LEAF MOUNTAINMINT
0.4%	SOLIDAGO PATULA	ROUGH LEAF GOLDENROD
0.3%	EUPATORIUM FISTULOSUM	JOE PYE WEED
0.3%	LOBELIA SIPHILITICA	GREAT BLUE LOBELIA
0.2%	ASTER PUNICEUS	PURPLESTEM ASTER

- SEEDING RATE: 20 LBS/ACRE WITH A COVER CROP AT 30 LBS/ACRE
- THIS SEED MIX IS TO BE USED TO REVEGETATE WORKSPACE WITHIN THE DESIGNATED 150' RIPARIAN BUFFER AREA WHERE SLOPES ARE LESS THAN 10%. IF THE SLOPE EXCEEDS 10%, A STANDARD UPLAND ROW MIX SHOULD BE USED.
- AN ALTERNATIVE SEED MIXTURE THAT CONTAINS SIMILAR SPECIES IS ACCEPTABLE.

**TABLE 11.2
Soil Amendment Application Rate Equivalents**

Soil Amendment	Permanent Seeding Application Rate			Notes
	Per Acre	Per 1,000 sq. ft.	Per 1,000 sq. yd.	
Agricultural lime	6 tons	240 lb.	2,480 lb.	Or as per soil test; may not be required in agricultural fields
10-20-20 fertilizer	1,000 lb.	25 lb.	210 lb.	Or as per soil test; may not be required in agricultural fields
Temporary Seeding Application Rate				
Agricultural lime	1 ton	40 lb.	410 lb.	Typically not required for topsoil stockpiles
10-10-10 fertilizer	500 lb.	12.5 lb.	100 lb.	Typically not required for topsoil stockpiles

Adapted from Penn State, "Erosion Control and Conservation Plantings on Noncropland"

NOTE: A compost blanket which meets the standards of this chapter may be substituted for the soil amendments shown in Table 11.2.

TEMPORARY AND PERMANENT STABILIZATION:

- PERMANENT STABILIZATION: UPON FINAL COMPLETION OF AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY, THE SITE SHALL IMMEDIATELY HAVE TOPSOIL RESTORED, REPLACED, OR AMENDED, SEED MIXTURE 1 PLUS 2 FROM TABLE 11.5, MULCHED OR OTHERWISE PERMANENTLY STABILIZED AND PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION.
E&S BMPs SHALL BE IMPLEMENTED AND MAINTAINED UNTIL THE PERMANENT STABILIZATION IS COMPLETED. ONCE PERMANENT STABILIZATION HAS BEEN ESTABLISHED, THE TEMPORARY E&S BMPs SHALL BE REMOVED. ANY AREAS DISTURBED IN THE ACT OF REMOVING TEMPORARY E&S BMPs SHALL BE PERMANENTLY STABILIZED UPON COMPLETION OF THE TEMPORARY E&S BMP REMOVAL ACTIVITY.
FOR AN EARTH DISTURBANCE ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY TO BE CONSIDERED PERMANENTLY STABILIZED, THE DISTURBED AREAS SHALL BE COVERED WITH ONE OF THE FOLLOWING:
 - A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION.
 - AN ACCEPTABLE BMP WHICH PERMANENTLY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION.
 WHEN EROSION AND SEDIMENTATION CONTROLS ARE TO BE REMOVED IN AGRICULTURAL NON-SENSITIVE AREAS (STREAMS/WETLANDS), AGRICULTURAL LANDOWNERS SHALL MAINTAIN AGRICULTURAL BMPs PER PADEP REGULATIONS.
- TEMPORARY 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 4 DAYS (INCLUDING AGRICULTURAL AREAS), THE SITE SHALL BE IMMEDIATELY SEED, 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 EROSION AND SEDIMENTATION.
 - AN ACCEPTABLE BMP WHICH TEMPORARILY MINIMIZES ACCELERATED EROSION AND SEDIMENTATION.
- STABILIZATION DURING NON-GROWING SEASONS
WHEN UTILITY CONSTRUCTION MUST BE DONE AND IS COMPLETED DURING A NON-GROWING SEASON, INTERIM STABILIZATION BMPs MUST BE IMPLEMENTED AND ADEQUATELY MAINTAINED. THE APPLICATION OF STRAW MULCH AND THE RATE OF 3.0 TONS PER ACRE IS REQUIRED. THE BMPs SHOULD BE INSPECTED WEEKLY (UNLESS SNOW COVERED) AND AFTER EACH RUNOFF EVENT TO IDENTIFY AREAS THAT BECOME BARE.
BARE AREAS SHALL BE COVERED WITH A PROPERLY INSTALLED EROSION CONTROL BLANKET. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED.
- WETLAND STABILIZATION: TEMPORARY COVER FOR WETLANDS AREAS WILL INCLUDE ANNUAL RYEGRASS AT 40LBS/ACRE. DO NOT LIME, FERTILIZE OR MULCH WETLAND AREAS. PERMANENT WETLAND MIX IS ERNST 122 FACW MEADOW MIX AT 20 LB/ACRE.
- RIPARIAN BUFFER STABILIZATION - TEMPORARY COVER FOR RIPARIAN AREAS TO INCLUDE SEED FROM MIXTURE 1 FROM TABLE 11.4, AT THE OUTLINED SEEDING RATE. PERMANENT COVER FOR RIPARIAN AREAS WILL INCLUDE 30LBS/ACRE OF ERNST 178 RIPARIAN BUFFER MIX. WHERE SLOPES EXCEED 10% THE PERMANENT MIX SHALL BE SEED MIXTURE 2 FROM TABLE 11.4. EROSION CONTROL BLANKET IS TO BE UTILIZED ALONG STREAM BANKS, AS OUTLINED IN THE ECB DETAIL. ADD LIME AND FERTILIZER AS OUTLINED IN TABLE 11.2.

ERNST - FACW MEADOW MIX (ENST-122)
(Application Rate - 20 pounds per acre)

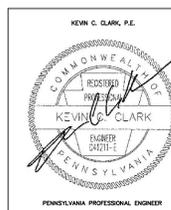
Percent	Scientific Name	Common Name
33.20%	Carex vulpinoidea	Fox Sedge
20.00%	Elymus virginicus	Virginia Wildrye
8.00%	Carex lupulina	Hop Sedge
8.00%	Carex lurida	Lurid Sedge
8.00%	Carex scoparia	Blunt Broom sedge
4.00%	Verbena hastata	Blue Vertain
3.00%	Cinna arundinacea	Wood Reedgrass
3.00%	Juncus effusus	Soft Rush
2.50%	Asclepias incarnata	Swamp Milkweed
2.00%	Helopsis helianthoides	Oxeye Sunflower
1.20%	Aster puniceus	Purplestem Aster
1.20%	Aster umbellatus	Flap Topped White Aster
1.00%	Eupatorium perfoliatum	Bonaset
1.00%	Helenium autumnale	Common Sneezeweed
0.60%	Aster novae-angliae	New England Aster
0.50%	Alisma Subcordatum	Mud Plantain
0.50%	Labelia siphilitica	Great Blue Lobelia
0.50%	Penthorum sedoides	Ditch Stonecrop
0.50%	Scirpus atrovirens	Green Bulrush
0.50%	Scirpus cyperinus	Woolgrass
0.30%	Eupatorium fistulosum	Joe Pye Weed
0.30%	Onoclea sensibilis	Sensitive Fern
0.10%	Chelone glabra	Turtlehead
0.10%	Mimulus ringens	Square Stemmed Monkeyflower

**TABLE 11.6
Mulch Application Rates**

Mulch Type	Application Rate (Min.)		
	Per Acre	Per 1,000 sq. ft.	Per 1,000 sq. yd.
Straw	3 tons	140 lb.	1,240 lb.
Hay	3 tons	140 lb.	1,240 lb.
Wood Chips	4-6 tons	185 - 275 lb.	1,650 - 2,500 lb.
Hydromulch	1 ton	47 lb.	415

NOTES

- SHREDDED PAPER HYDROMULCH SHOULD NOT BE USED ON SLOPES STEEPER THAN 5%. WOOD FIBER HYDROMULCH MAY BE APPLIED ON STEEPER SLOPES PROVIDED A TACKIFIER IS USED. THE APPLICATION RATE FOR ANY HYDROMULCH SHOULD BE 2,000 LB/ACRE AT A MINIMUM.
- MULCH ON SLOPES OF 8% OR STEEPER SHOULD BE HELD IN PLACE WITH NETTING. LIGHTWEIGHT PLASTIC, FIBER, OR PAPER NETS MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- SYNTHETIC BINDERS, OR CHEMICAL BINDERS, MAY BE USED AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH PROVIDED SUFFICIENT DOCUMENTATION IS PROVIDED TO SHOW THEY ARE NON-TOXIC TO NATIVE PLANT AND ANIMAL SPECIES.
- POLYMERIC AND GUM TACKIFIERS MIXED AND APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS MAY BE USED TO TACK MULCH. AVOID APPLICATION DURING RAIN AND ON WINDY DAYS. A 24-HOUR CURING PERIOD AND A SOIL TEMPERATURE HIGHER THAN 450 F ARE TYPICALLY REQUIRED. APPLICATION SHOULD GENERALLY BE HEAVIEST AT EDGES OF SEEDING AREAS AND AT CRESTS OF RIDGES AND BANKS TO PREVENT LOSS BY WIND. THE REMAINDER OF THE AREA SHOULD HAVE BINDER APPLIED UNIFORMLY. BINDERS MAY BE APPLIED AFTER MULCH IS SPREAD OR SPRAYED INTO THE MULCH AS IT IS BEING BLOWN ONTO THE SOIL. APPLYING STRAW AND BINDER TOGETHER IS GENERALLY MORE EFFECTIVE.
- STRAW AND HAY MULCH SHOULD BE ANCHORED OR TACKIFIED IMMEDIATELY AFTER APPLICATION TO PREVENT BEING BLOWN DOWN. A TRACTOR-DRAWN IMPLEMENT MAY BE USED TO "CRIMP" THE STRAW OR HAY INTO THE SOIL - ABOUT 3 INCHES. THIS METHOD SHOULD BE LIMITED TO SLOPES NO STEEPER THAN 3:1V. THE MACHINERY SHOULD BE OPERATED ON THE CONTOUR. NOTE: CRIMPING OF HAY OR STRAW BY RUNNING OVER IT WITH TRACKED MACHINERY IS NOT RECOMMENDED.

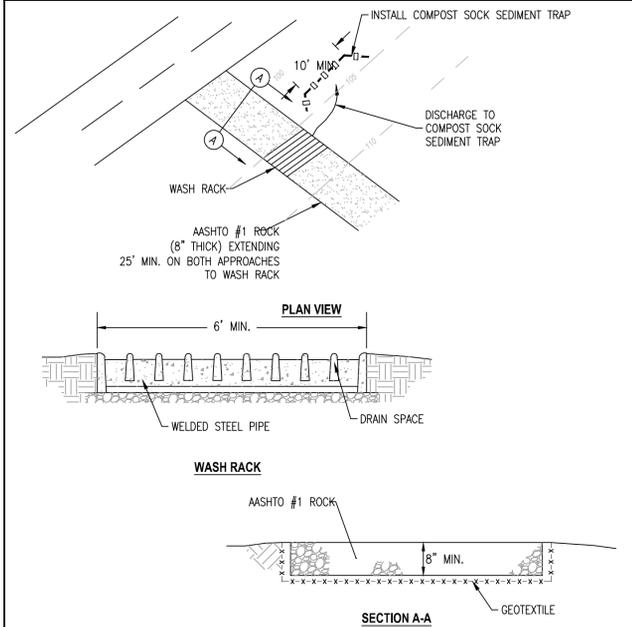


NO.		DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1		5/6/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZED WETLAND IMPACTS AND PER PADEP COMMENTS			

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN
SOIL EROSION & SEDIMENT CONTROL PLAN
NOTES SHEET 3
FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DRAWN BY: SWH	DATE: 7/29/19	ISSUED FOR BID:	SCALE:
CHECKED BY: KMC	DATE: 9/15/19	ISSUED FOR CONSTRUCTION:	REVISION: 1
APPROVED BY: KCC	DATE: 9/20/19	DRAWING NUMBER: 26-1000-70-28-D	SHEET 6 OF 10

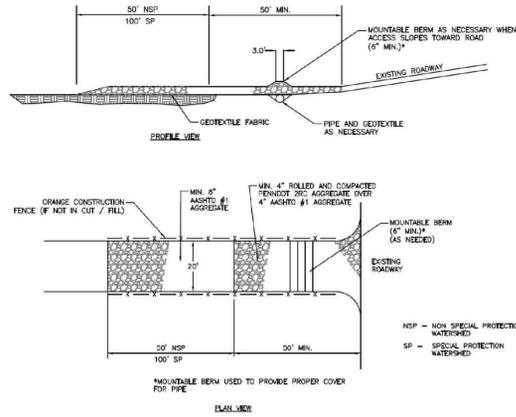




- NOTES:
- 1) WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS, WHICHEVER IS GREATER.
 - 2) WASH RACK SHALL BE CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.
 - 3) A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.
 - 4) MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE ROADWAY. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAYS OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

CONSTRUCTION ENTRANCE
TEMPORARY EROSION CONTROL MEASURE

Example Alternative Rock Construction Entrance



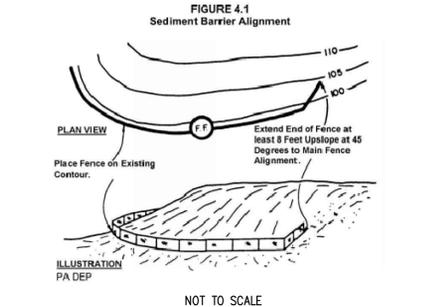
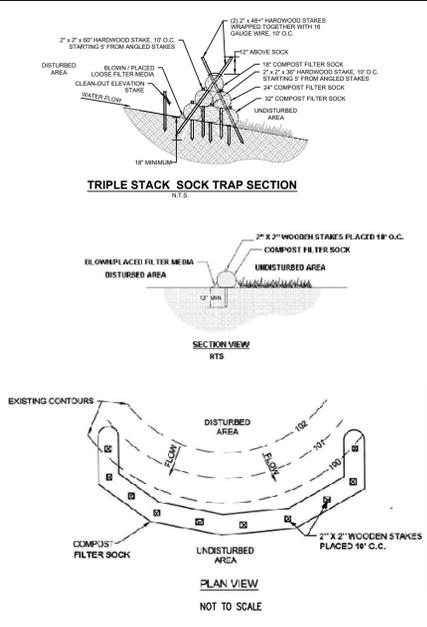
- NOTES:
- 1) REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.
 - 2) MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL OUTLET PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.
 - 3) MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FT 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.
 - 4) STREET SWEEPING ON PAVED ROADS
 - a. USE A VACUUM TRUCK SWEEPER OR SWEEPER WITH A CATCH BIN ATTACHMENT.
 - b. AT A MINIMUM - ANY DAY IN WHICH CONSTRUCTION TRAFFIC IS EXITING THE ROCK CONSTRUCTION ENTRANCE, THE VACUUM TRUCK SWEEPER OR SWEEPER WITH A CATCH BIN ATTACHMENT SHALL CLEAN THE ROAD WAY AT THE END OF THE WORK DAY AND PRIOR TO ANY FORECASTED RAIN EVENT.
 - 5) STREET SWEEPING ON DIRT OR GRAVEL SURFACE PUBLIC ROADS
 - a. PROVIDES MANUAL REMOVAL OF MUD/DIRT FROM VEHICLE/EQUIPMENT TIRES PRIOR TO EXITING CONSTRUCTION SITE, SUPPLEMENTED BY IMMEDIATE RECOVERY, BY MANUAL OR MECHANICAL MEANS, OF SOIL WHICH MAY BECOME DISCHARGED ONTO PUBLIC ROADWAYS. DUST CONTROL AND/OR COMPACTION VIA ROLLING OF THE DIRT PUBLIC ROAD SURFACE WILL BE IMPLEMENTED AS NEEDED.

CONSTRUCTION ENTRANCE (ALTERNATIVE)
TEMPORARY EROSION CONTROL MEASURE

NO.	DATE	BY	REVISION DESCRIPTION	NO. NO. CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

CE CONSTRUCTION ENTRANCE



- NOTES:
1. ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS.
 2. COMPOST FILTER SOCK FILL TO MEET APPLICATION REQUIREMENTS.
 3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY CONSTRUCTION CONTRACTOR.
 4. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT.
 5. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
 6. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
 7. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION WITH ADDITIONAL SOCK OR ROCK FILTER.
 8. BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
 9. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

	ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT BASIS)
	ORGANIC PORTION	FIBROUS AND ELONGATED
	pH	5.5 - 8.5
	MOISTURE CONTENT	30% - 60%
	PARTICLE SIZE	30% - 50% PASS THROUGH 3/8" SIEVE
	SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM

MATERIAL TYPE	3 mil HDPE	5 mil HDPE	5 mil HDPE	MULTI-FILAMENT POLYPROPYLENE (MPP)	HEAVY-DUTY MULTI-FILAMENT POLYPROPYLENE (HMPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIODEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18"
MESH OPENING	3/8"	3/8"	3/8"	3/8"	1/8"
TENSILE STRENGTH		26 psi	44 psi		202 psi
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS

TWO-PLY SYSTEMS

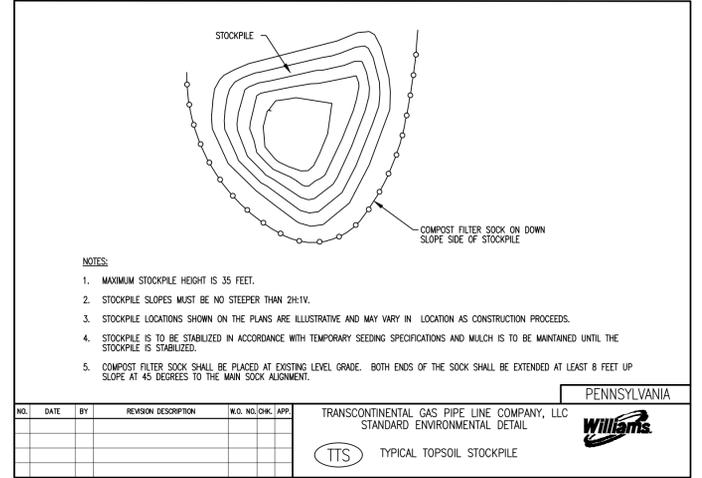
INNER CONTAINMENT NETTING	HOPE BIAXIAL NET CONTINUOUSLY WOUND FUSION-WELDED JUNCTIONS 3/4" x 3/4" MAX. APERTURE SIZE
OUTER FILTRATION MESH	COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16" MAX. APERTURE SIZE

SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS.

NO.	DATE	BY	REVISION DESCRIPTION	NO. NO. CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE CORPORATION
STANDARD ENVIRONMENTAL DETAIL

CFS COMPOST FILTER SOCK

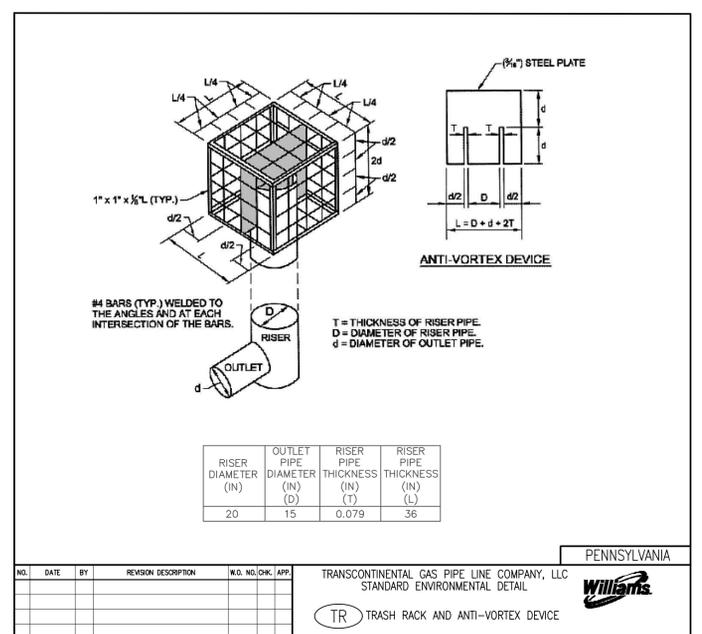


NO.	DATE	BY	REVISION DESCRIPTION	NO. NO. CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

TTS TYPICAL TOPSOIL STOCKPILE

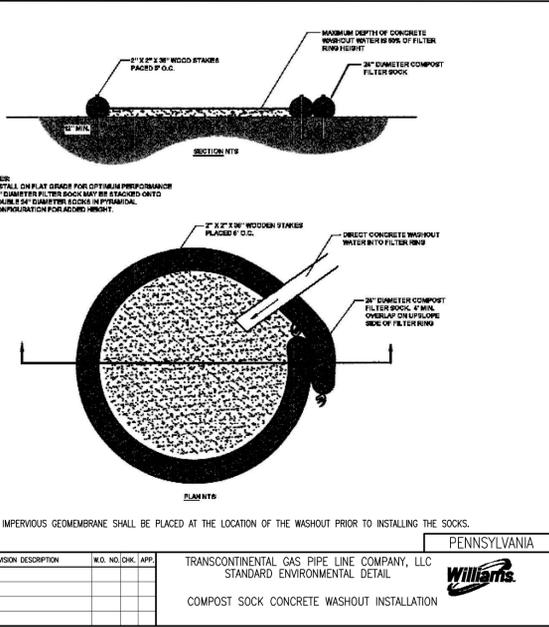
SOCK NO.	Dia. In.	LOCATION	SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FT)	SOCK NO.	Dia. In.	LOCATION	SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FT)
CFS-607A 1	24	see map	7	300	CFS-607A 27	12	see map	3	233
CFS-607A 2	24	see map	7	300	CFS-607A 28	12	see map	4	300
CFS-607A 3	24	see map	7	300	CFS-607A 29	12	see map	4	300
CFS-607A 4	24	see map	7	300	CFS-607A 30	12	see map	4	300
CFS-607A 5	24	see map	7	300					
CFS-607A 6	24	see map	7	300					
CFS-607A 7	24	see map	7	300					
CFS-607A 8	24	see map	8	320					
CFS-607A 9	24	see map	8	320					
CFS-607A 10	24	see map	8	320					
CFS-607A 11	24	see map	7	374					
CFS-607A 12	24	see map	7	374					
CFS-607A 13	24	see map	7	374					
CFS-607A 14	24	see map	7	374					
CFS-607A 15	24	see map	7	374					
CFS-607A 16	24	see map	7	374					
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CFS-607A 20	24	see map	7	147					
CFS-607A 21	24	see map	7	147					
CFS-607A 22	24	see map	7	147					
CFS-607A 23	24	see map	7	147					
CFS-607A 24	24	see map	7	147					
CFS-607A 25	12	see map	3	233					
CFS-607A 26	12	see map	3	233					



NO.	DATE	BY	REVISION DESCRIPTION	NO. NO. CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

TR TRASH RACK AND ANTI-VORTEX DEVICE



A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.

NO.	DATE	BY	REVISION DESCRIPTION	NO. NO. CHK. APP.

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
STANDARD ENVIRONMENTAL DETAIL

COMPOST SOCK CONCRETE WASHOUT INSTALLATION



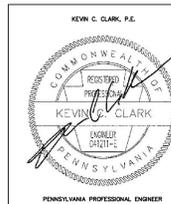
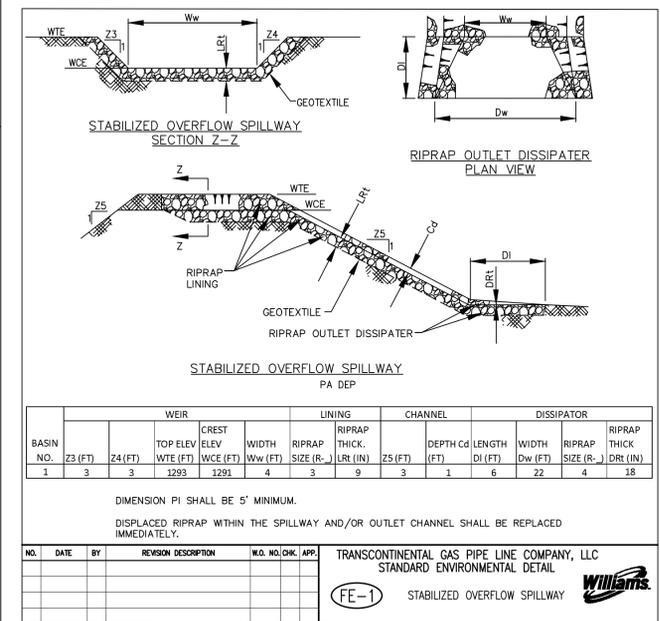
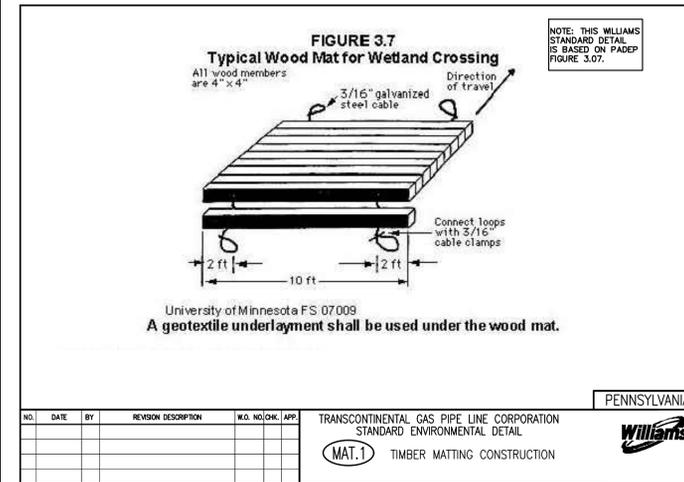
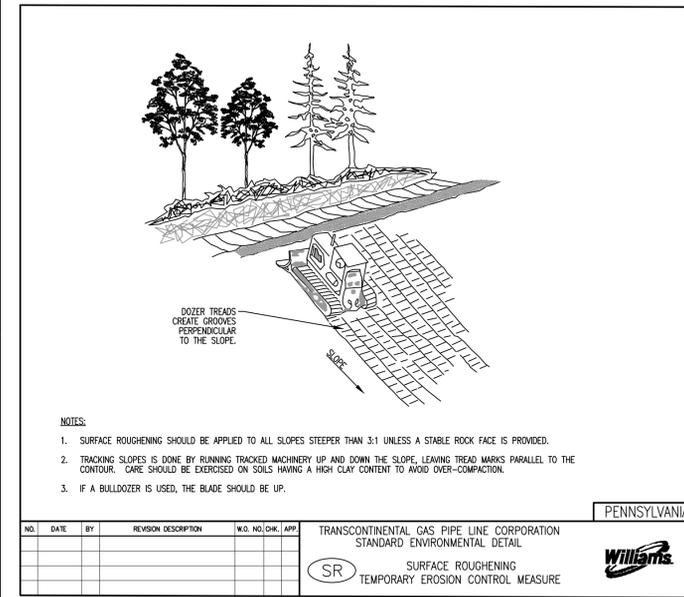
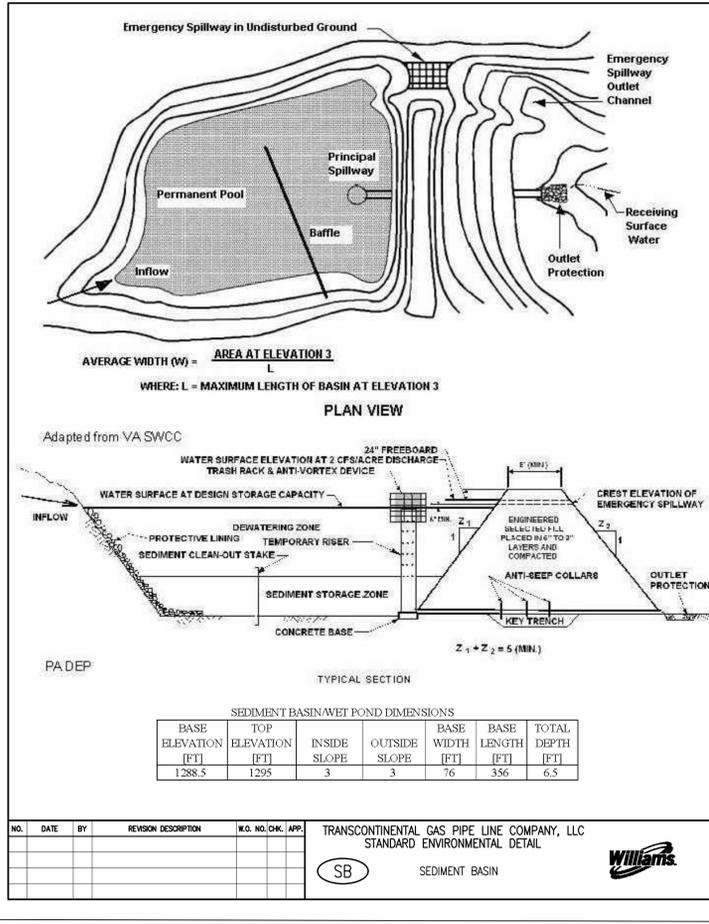
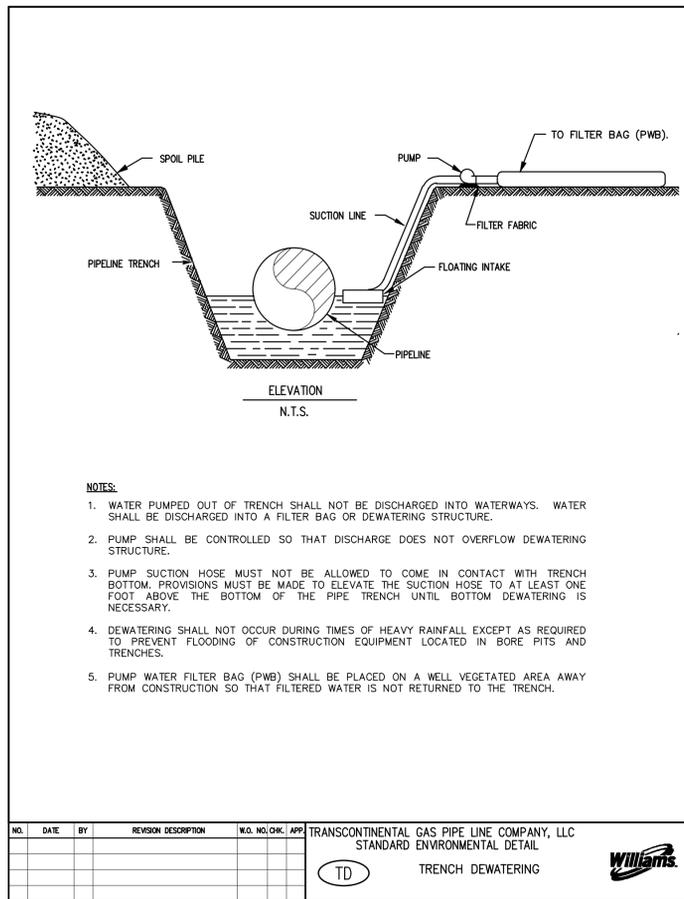
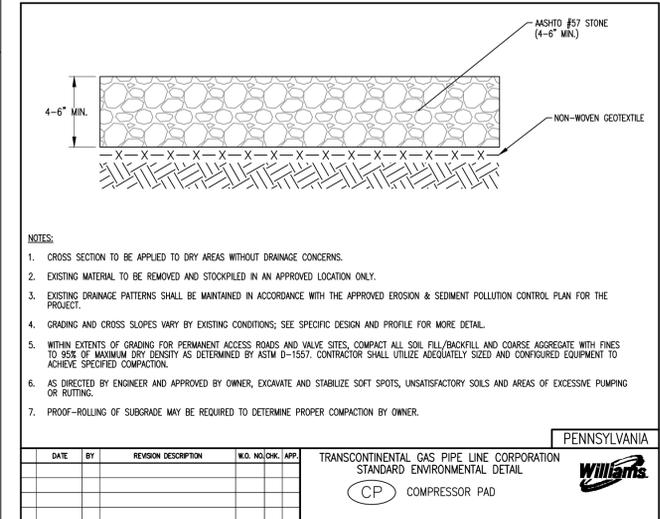
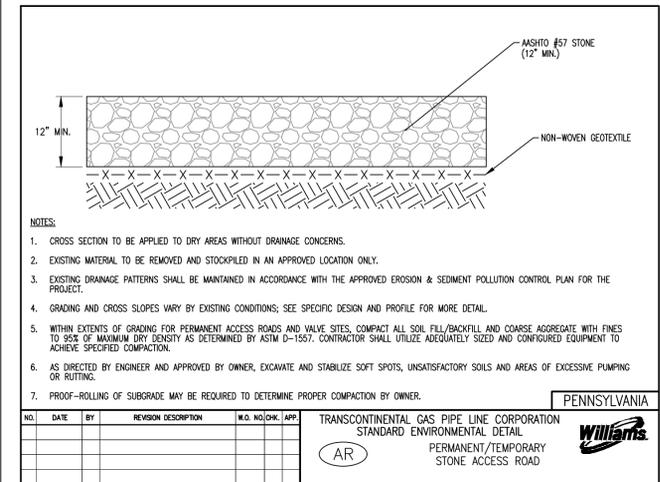
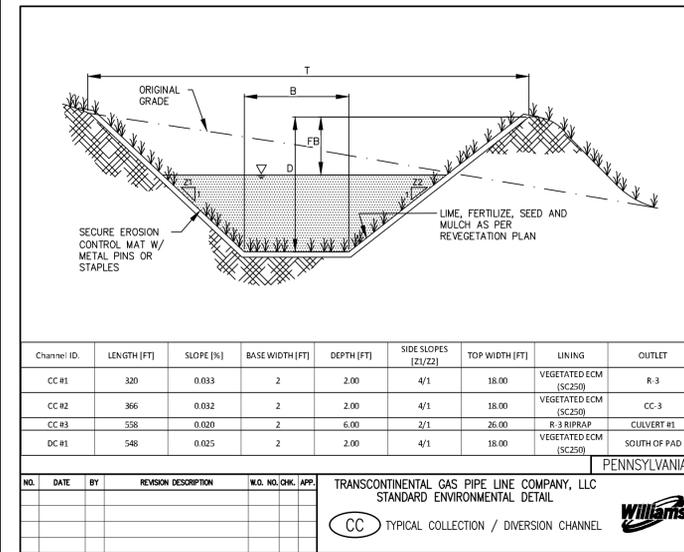
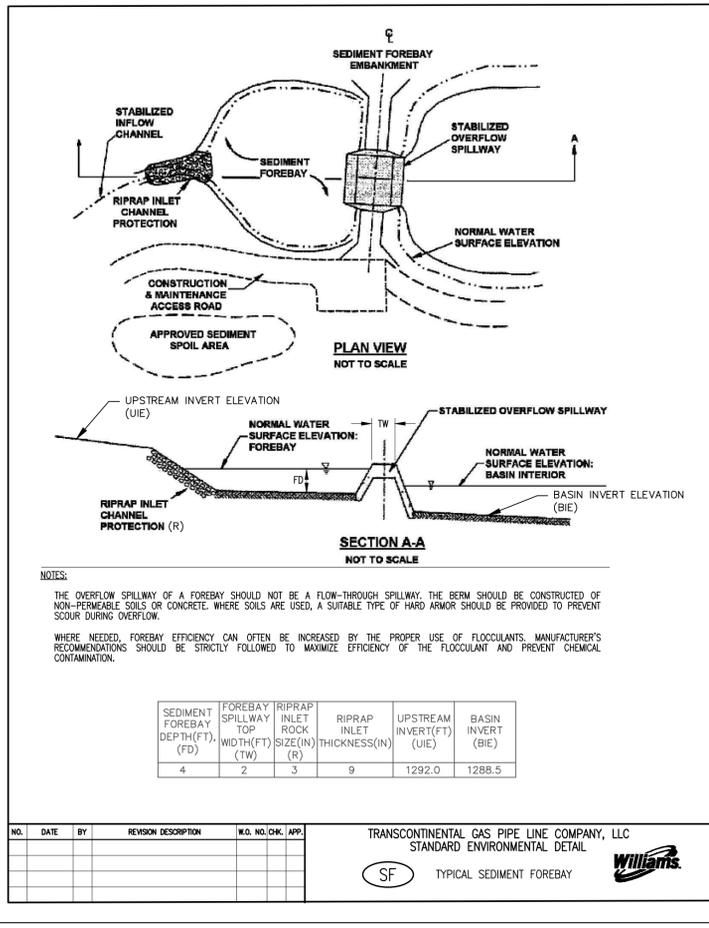
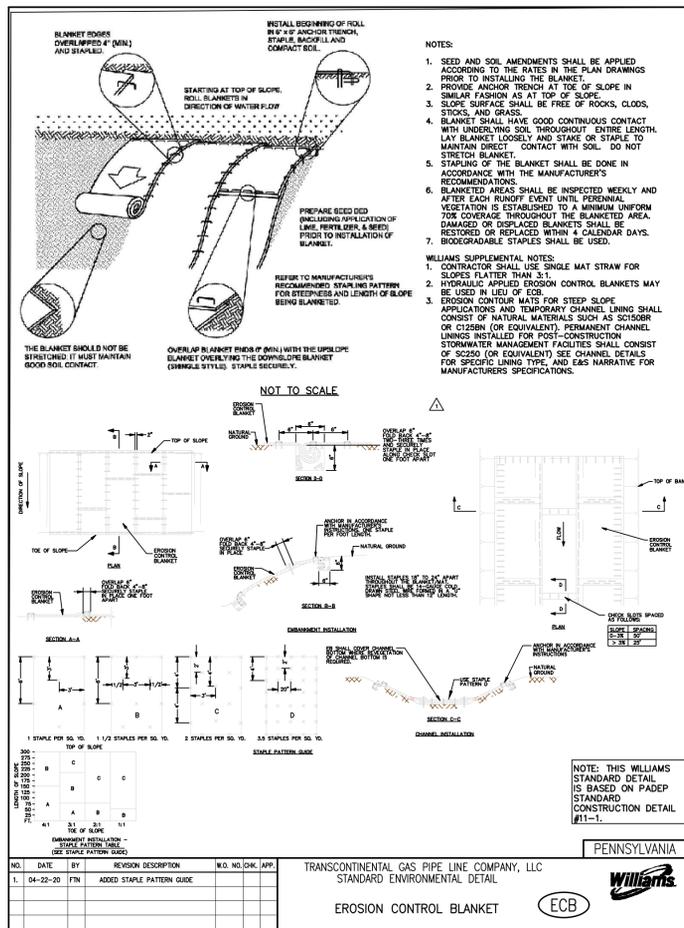
NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	5/6/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZED WETLAND IMPACTS AND PER PADEP COMMENTS			

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN

SOIL EROSION & SEDIMENT CONTROL PLAN
DETAILS SHEET 1

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DRAWN BY: SWH	DATE: 7/29/19	ISSUED FOR BID:	SCALE:
CHECKED BY: KMC	DATE: 9/15/19	ISSUED FOR CONSTRUCTION:	REVISION: 1
APPROVED BY: KCC	DATE: 9/20/19		
WO: 1211227	RID:	DRAWING NUMBER: 26-1000-70-28-D	SHEET 7 OF 10



NO.	DATE	BY	DESCRIPTION	W.O. NO.	CHK.	APP.
1	5/04/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZE WETLAND IMPACTS AND PER PADEP COMMENTS			

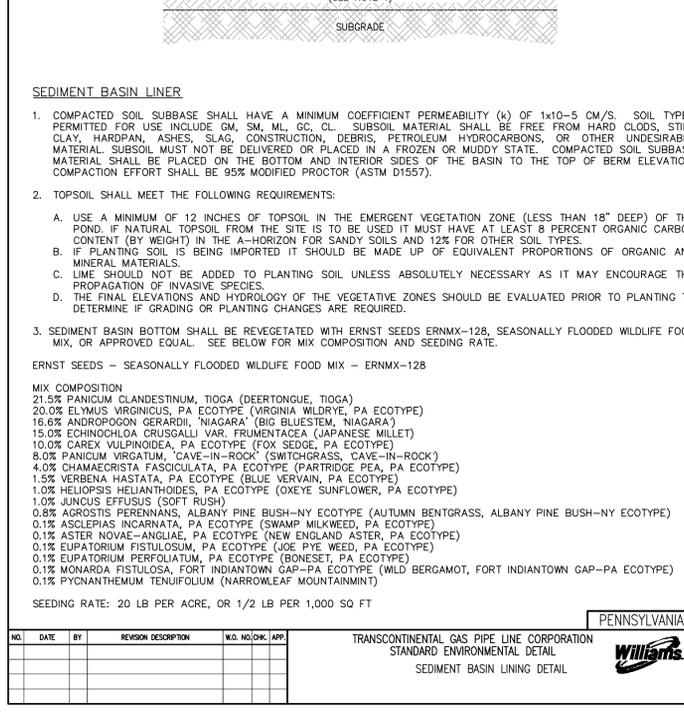
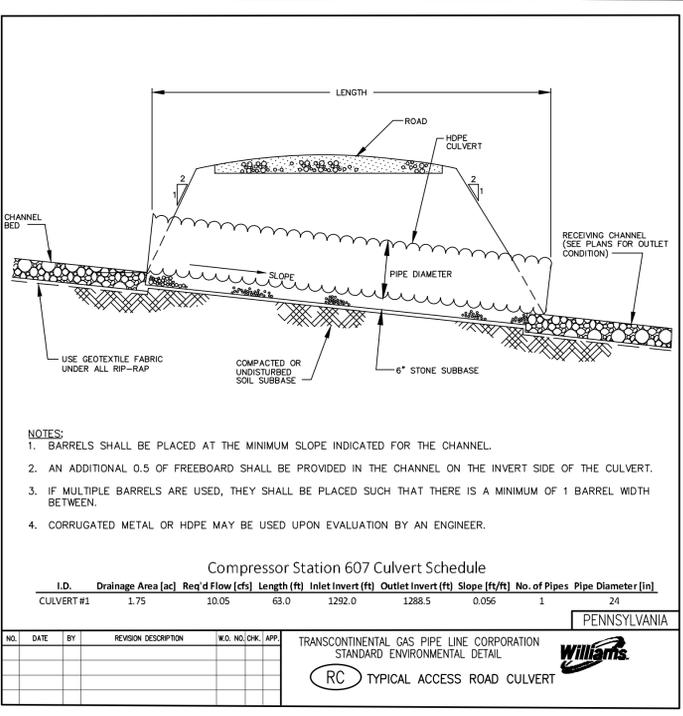
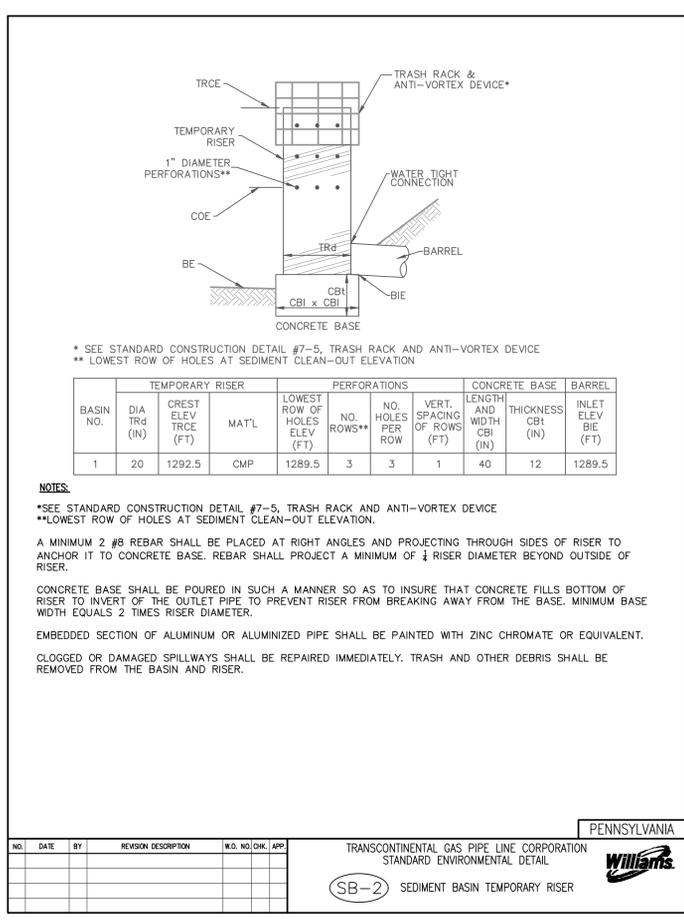
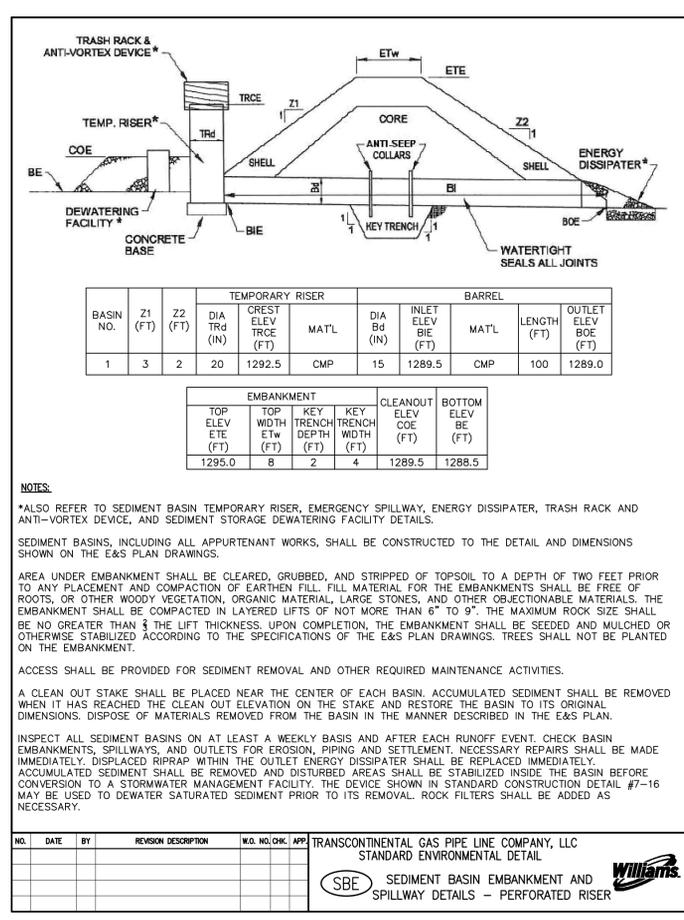
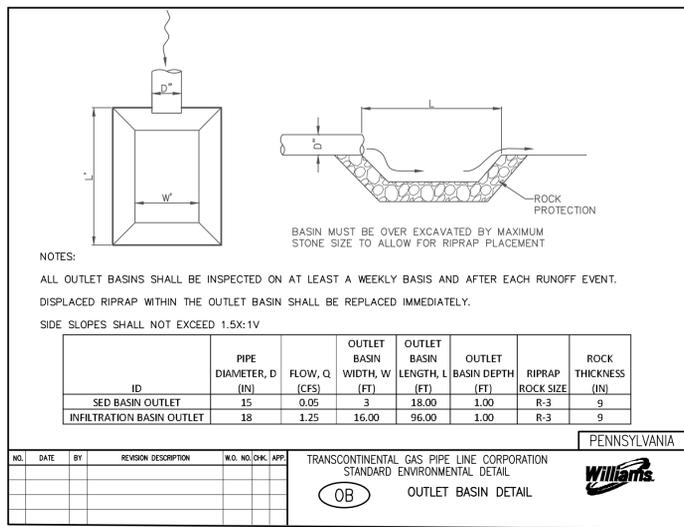
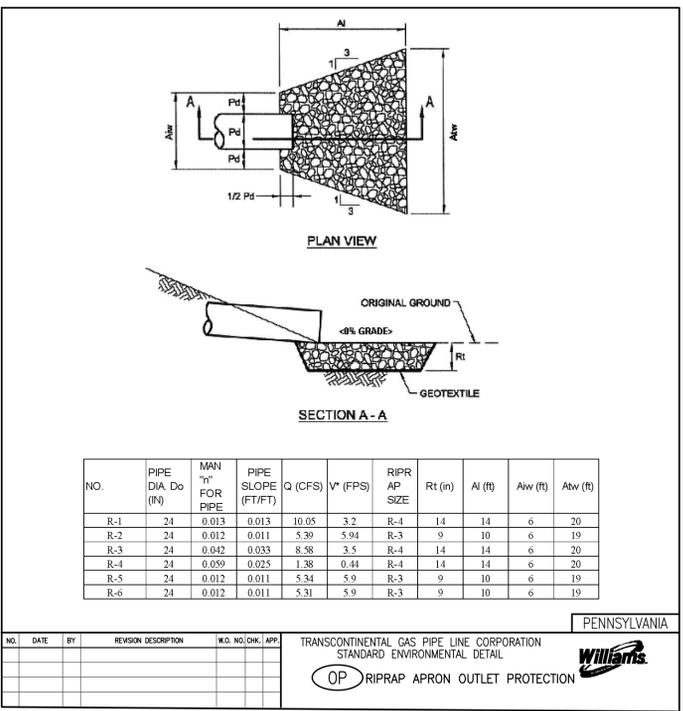
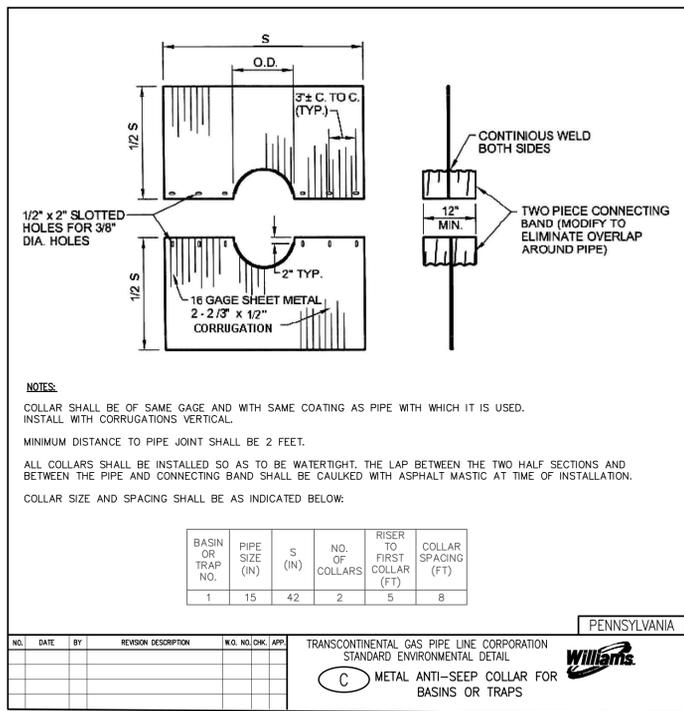
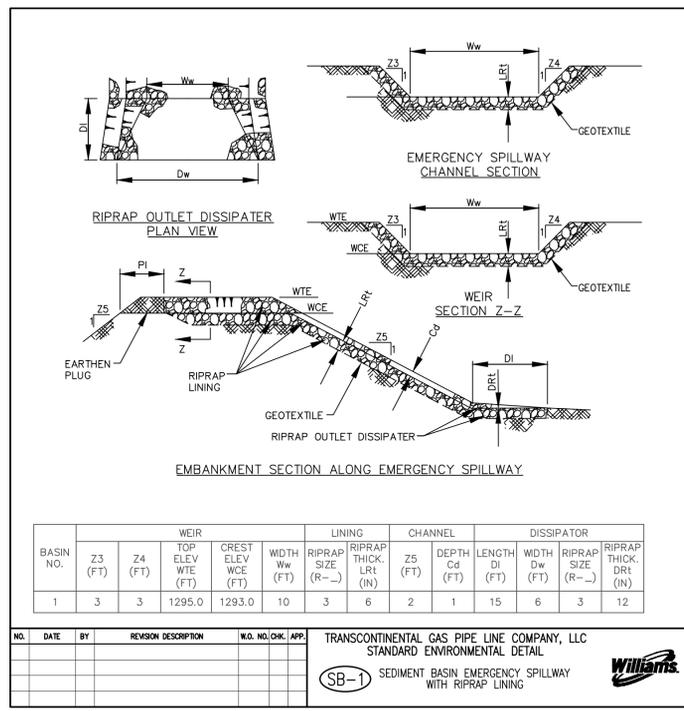
TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN
DETAILS SHEET 2
FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

WILLIAMS CONSULTING, INC.

DRAWN BY: SWH DATE: 7/20/19 ISSUED FOR BID: SCALE:
CHECKED BY: KMC DATE: 9/15/19 ISSUED FOR CONSTRUCTION: REVISION: 1
APPROVED BY: KCC DATE: 9/20/19
W.O. 1211227 RID: DRAWING NUMBER: 26-1000-70-28-D

SHEET 8 OF 10





REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	5/04/20	SWH	UPDATED GRADING PLAN TO AVOID / MINIMIZE WETLAND IMPACTS AND PER PADEP COMMENTS

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT - COMPRESSOR STATION 607
SOIL EROSION & SEDIMENT CONTROL PLAN
DETAILS SHEET 3

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

DRAWN BY: SWH	DATE: 7/29/19	ISSUED FOR BID:	SCALE:
CHECKED BY: KMC	DATE: 9/19/19	ISSUED FOR CONSTRUCTION:	REVISION: 1
APPROVED BY: KCC	DATE: 9/20/19		

DRAWING NUMBER: 26-1000-70-28-D SHEET 9 OF 10

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT N
HYDROLOGY AND HYDRAULICS
ANALYSIS STATEMENT**

HYDROLOGIC AND HYDRAULIC ANALYSIS

No permanent culverts which convey regulated waters are proposed to be improved or installed for access roads as part of this Project; therefore, a Hydrologic and Hydraulic Analysis is not provided. The Project will involve the installation of temporary culverts for stormwater conveyance purposes only. The sizing calculations for these culverts have been included in the Chapter 102 Erosion and Sediment Control General Permit – 3 for the Project, as required.

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT O

STORMWATER MANAGEMENT ANALYSIS



September 25, 2019

UPS TRACKING (1Z8797VV0393642125)

Fairmount Township Supervisors
383 Municipal Road
Benton, PA 17814

Re: Leidy South Project – Compressor Station 607
Stormwater Management Analysis
Fairmount Township, Luzerne County, Pennsylvania

Dear Fairmount Township Supervisors:

The purpose of this notice is to inform you of Transcontinental Gas Pipe Line Company, LLC's (Transco), a subsidiary of Williams Partners L.P. (Williams), intent to submit a Chapter 105 Water Obstruction and Encroachment Permit to the Pennsylvania Department of Environmental Protection (PADEP) in accordance with 25 Pennsylvania Code §105.13(e)(l)(v), Transco is providing this stormwater management analysis for Project impacts within Fairmount Township, Luzerne County.

Project Description: The Leidy South Project (Project) is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Compressor Station 607 will consist of the installing two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres.

Stormwater Management Analysis: The proposed Project will have minimal impacts during construction and post-construction to stormwater storage and control, with no long-term impacts anticipated. All aboveground facilities will be located outside of FEMA floodplains, FEMA floodways and 50-foot floodways. The post-construction design will have result in the increase of impervious area, the impact of which will be mitigated through stormwater management design, which will promote infiltration at the site through the implementation of an infiltration basin and wet detention pond. Erosion controls which will be installed during construction have been designed to avoid impacts to natural drainage features. These controls will only have temporary impacts while installed and will be removed once the site is stabilized with vegetation. The proposed post-construction stormwater management best management design will result in no net increase in the rate of stormwater runoff and minimize any increase in stormwater runoff volume.

Enclosed you will find a USGS Project Location Map, Erosion and Sediment Control and Site Restoration Plan, Post-Construction Stormwater Management Plan Drawings, and General Information Form to assist in your review. Transco is requesting that the County provide a consistency letter verifying the stormwater management analysis. This consistency letter is required as part of the Chapter 105 Water Obstruction and Encroachment Permit being submitted to the PADEP Regional Permit Coordination Office.

Please forward the consistency letter to:

Kevin M. Clark
WHM Consulting, Inc.
2525 Green Tech Drive; Suite B
State College, PA 16803

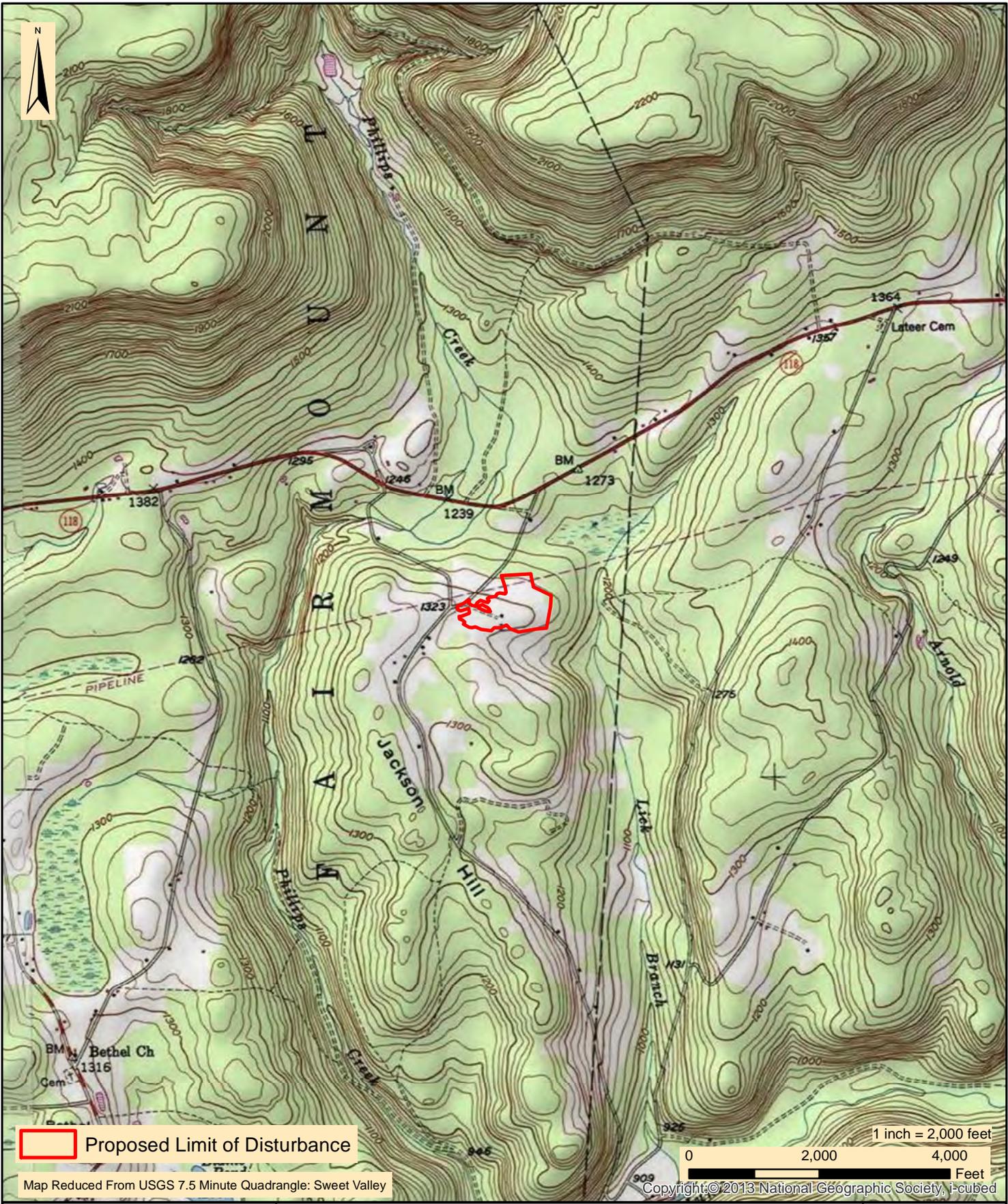
Sincerely,



Kevin M. Clark, PWS
WHM Consulting, Inc.

Enclosures: E&S Plan Drawings
PCSM Plan Drawings
PADEP GIF Form
Project Location Map

USGS PROJECT LOCATION MAP



Proposed Limit of Disturbance

Map Reduced From USGS 7.5 Minute Quadrangle: Sweet Valley

1 inch = 2,000 feet
 0 2,000 4,000 Feet
 Copyright © 2013 National Geographic Society, i-cubed



designs, permits, resolutions
consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
 NEW **PROPOSED** COMPRESSOR STATION 607
 PROJECT LOCATION MAP

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

Date:	8/21/2019
WHM Drawing Number:	WILLIAMS204A001
Drawn By:	FTN
Figure Number:	5

GENERAL INFORMATION FORM

Form



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

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

CLIENT INFORMATION

DEP Client ID# 82494	Client Type / Code LLC		
Organization Name or Registered Fictitious Name Transcontinental Gas Pipe Line Company, LLC.		Employer ID# (EIN) 74-1079400	Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix SSN
Additional Individual Last Name	First Name	MI	Suffix SSN
Mailing Address Line 1 2800 Post Oak Blvd, Level 11		Mailing Address Line 2	
Address Last Line – City Houston		State PA	ZIP+4 77056
Client Contact Last Name Dean		First Name Joseph	MI Suffix
Client Contact Title Environmental Manager		Phone 713-215-3427	Ext
Email Address Joesph.Dean@williams.com		FAX	

SITE INFORMATION

DEP Site ID#	Site Name Leidy South Project - Compressor Station 607		
EPA ID#	Estimated Number of Employees to be Present at Site		
Description of Site Rural, agricultural and forested area adjacent to/overlapping an existing natural gas pipeline right-of-way.			
County Name Luzerne	Municipality Fairmount	City <input type="checkbox"/>	Boro <input type="checkbox"/>
		Twp <input checked="" type="checkbox"/>	State
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>
		Twp <input type="checkbox"/>	State
Site Location Line 1 78 Maransky Road		Site Location Line 2	
Site Location Last Line – City Sweet Valley		State PA	ZIP+4 18656
Detailed Written Directions to Site From Dallas, PA: At traffic circle take the 3 rd exit and stay on PA-415 North for 1.7 miles. Turn left on PA-118 West and go 13.3 miles. Turn left onto Jackson Hill Road/Maransky Road go 0.4 mile, destination will be on the left.			
Site Contact Last Name Dean	First Name Joseph	MI	Suffix
Site Contact Title Environmental Manager		Site Contact Firm Transcontinental Gas Pipe Line Company, LLC	
Mailing Address Line 1 2800 Post Oak Blvd., Level 11		Mailing Address Line 2	

Mailing Address Last Line – City Houston			State TX	ZIP+4 77056
Phone 713-215-3427	Ext	FAX	Email Address Joseph.Dean@williams.com	
NAICS Codes (Two- & Three-Digit Codes – List All That Apply) 221			6-Digit Code (Optional)	
Client to Site Relationship OWN				

FACILITY INFORMATION

Modification of Existing Facility		Yes	No
1.	Will this project modify an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Will this project involve an addition to an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>If "Yes", check all relevant facility types and provide DEP facility identification numbers below.</i>			
Facility Type	DEP Fac ID#	Facility Type	DEP Fac ID#
<input type="checkbox"/> Air Emission Plant	_____	<input type="checkbox"/> Industrial Minerals Mining Operation	_____
<input type="checkbox"/> Beneficial Use (water)	_____	<input type="checkbox"/> Laboratory Location	_____
<input type="checkbox"/> Blasting Operation	_____	<input type="checkbox"/> Land Recycling Cleanup Location	_____
<input type="checkbox"/> Captive Hazardous Waste Operation	_____	<input type="checkbox"/> Mine Drainage Trmt/LandRecyProjLocation	_____
<input type="checkbox"/> Coal Ash Beneficial Use Operation	_____	<input type="checkbox"/> Municipal Waste Operation	_____
<input type="checkbox"/> Coal Mining Operation	_____	<input type="checkbox"/> Oil & Gas Encroachment Location	_____
<input type="checkbox"/> Coal Pillar Location	_____	<input type="checkbox"/> Oil & Gas Location	_____
<input type="checkbox"/> Commercial Hazardous Waste Operation	_____	<input type="checkbox"/> Oil & Gas Water Poll Control Facility	_____
<input type="checkbox"/> Dam Location	_____	<input type="checkbox"/> Oil & Gas Wastewater Storage Impoundment	_____
<input type="checkbox"/> Deep Mine Safety Operation -Anthracite	_____	<input type="checkbox"/> Public Water Supply System	_____
<input type="checkbox"/> Deep Mine Safety Operation -Bituminous	_____	<input type="checkbox"/> Radiation Facility	_____
<input type="checkbox"/> Deep Mine Safety Operation -Ind Minerals	_____	<input type="checkbox"/> Residual Waste Operation	_____
<input type="checkbox"/> Encroachment Location (water, wetland)	_____	<input type="checkbox"/> Storage Tank Location	_____
<input type="checkbox"/> Erosion & Sediment Control Facility	_____	<input type="checkbox"/> Water Pollution Control Facility	_____
<input type="checkbox"/> Explosive Storage Location	_____	<input type="checkbox"/> Water Resource	_____
		<input type="checkbox"/> Other:	_____

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
41.298049, -76.222742	41	17	53	76	13	22
Horizontal Accuracy Measure	Feet		--or--	Meters		
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input checked="" type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code	GISDR					
Reference Point Code	CNTAR					
Altitude	Feet	1310	--or--	Meters		
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input checked="" type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code	TOPO					
Geometric Type Code	POINT					
Data Collection Date	08/16/19					
Source Map Scale Number	1	Inch(es)	=	24,000	Feet	
	--or--	Centimeter(s)	=	Meters		

PROJECT INFORMATION

Project Name Leidy South Project - Compressor Station 607			
Project Description Compressor Station 607 will consist of installing two Solar Titan 130 gas driven turbine compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres. Because the Project is governed by the Natural Gas Act, the Federal Energy Regulatory Commission (FERC) has exclusive jurisdiction over siting; therefore, local zoning is preempted.			
Project Consultant Last Name Clark	First Name Kevin	MI M.	Suffix

Project Consultant Title Project Manager		Consulting Firm WHM Consulting, Inc.	
Mailing Address Line 1 2525 Green Tech Drive Suite B		Mailing Address Line 2	
Address Last Line – City State College		State PA	ZIP+4 16841
Phone 814-689-1560	Ext	FAX 814-689-1557	Email Address kevinc@whmgroup.com
Time Schedules Winter 2020/2021	Project Milestone (Optional) Commence Construction		
December 1, 2021	In service Date		

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** Yes No

2. **Is your project funded by state or federal grants?** Yes No
Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
 Aspect of Project Related to Grant _____
 Grant Source: _____
 Grant Contact Person: _____
 Grant Expiration Date: _____

3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** Yes No
Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
 If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

- Note:** Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.
1. **Is there an adopted county or multi-county comprehensive plan?** Yes No

 2. **Is there an adopted municipal or multi-municipal comprehensive plan?** Yes No

 3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** Yes No
Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
 If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.

 4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** Yes No
 If zoning approval has been received, attach documentation.

 5. **Have you attached Municipal and County Land Use Letters for the project?** Yes No

COORDINATION INFORMATION

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

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

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

1.0	Is this a coal mining project? If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
1.1	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.2	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.3	Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.4	For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.5	Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.6	Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.0	Is this a non-coal (industrial minerals) mining project? If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
2.1	Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.2	Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.3	Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.4	For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.5	Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

3.0	Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well? If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
3.1	Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.2	Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system? If "Yes", discuss in <i>Project Description</i> .	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.3	Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
4.0	Will the project involve a construction activity that results in earth disturbance? If "Yes", specify the total disturbed acreage. 4.0.1 Total Disturbed Acreage 18.25	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.0	Does the project involve any of the following? If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.1	Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.2	Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.3	Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
6.0	Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
7.0	Will the project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
8.0	Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations? If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the <i>Project Description</i> , where applicable. 8.0.1 Estimated Proposed Flow (gal/day)	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0	Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0.1	Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
10.0	Is this project for the beneficial use of biosolids for land application within Pennsylvania? If "Yes" indicate how much (i.e. gallons or dry tons per year). 10.0.1 Gallons Per Year (residential septage) _____ 10.0.2 Dry Tons Per Year (biosolids) _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
11.0	Does the project involve construction, modification or removal of a dam? If "Yes", identify the dam. 11.0.1 Dam Name _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No

12.0	Will the project interfere with the flow from, or otherwise impact, a dam? If "Yes", identify the dam.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
12.0.1	Dam Name				
13.0	Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)? If "Yes", identify each type of emission followed by the amount of that emission.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
13.0.1	Enter all types & amounts of emissions; separate each set with semicolons.	Summary of Compressor Station 607 Operational Potential to Emit (PTE): NOx - 54.83; CO - 47.45; VOC - 13.43; SO2 - 5.87; PM10 - 11.44; PM2.5 - 11.44; Single HAP - 5.01; Total HAP - 5.6; CO2e - 208,400.1 = Annual (tpy)			
14.0	Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year? If "Yes", check all proposed sub-facilities.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
14.0.1	Number of Persons Served	_____			
14.0.2	Number of Employee/Guests	_____			
14.0.3	Number of Connections	_____			
14.0.4	Sub-Fac: Distribution System	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.5	Sub-Fac: Water Treatment Plant	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.6	Sub-Fac: Source	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.7	Sub-Fac: Pump Station	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.8	Sub Fac: Transmission Main	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.9	Sub-Fac: Storage Facility	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
15.0	Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0	Is your project to be served by an existing public water supply? If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0.1	Supplier's Name	_____			
16.0.2	Letter of Approval from Supplier is Attached	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
17.0	Will this project involve a new or increased drinking water withdrawal from a stream or other water body? If "Yes", should reference both Water Supply and Watershed Management.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
17.0.1	Stream Name	_____			
18.0	Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste? If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
18.0.1	Type & Amount	_____			
19.0	Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0	Does your project involve installation of a field constructed underground storage tank? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0.1	Enter all substances & capacity of each; separate each set with semicolons.	_____			
21.0	Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
21.0.1	Enter all substances & capacity of each; separate each set with semicolons.	_____			

22.0 Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

22.0.1 Enter all substances & capacity of each; separate each set with semicolons.

23.0 Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

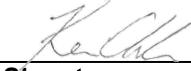
23.0.1 Enter all substances & capacity of each; separate each set with semicolons.

24.0 Will the intended activity involve the use of a radiation source? Yes No

CERTIFICATION

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

Type or Print Name Kevin M. Clark



Project Manager

08/28/2019

Signature

Title

Date

1 OF 1

2 LBS

SUE FOX
8146891650
WHM CONSULTING, INC
2525 GREEN TECH DR # B
STATE COLLEGE PA 16803

SHIP TO:
TO WHOM IT MAY CONCERN
5708642495
FAIRMOUNT TOWNSHIP SUPERVISORS
383 MUNICIPAL ROAD
BENTON PA 17814

PA 178 9-10




UPS GROUND
TRACKING #: 1Z 879 7VV 03 9364 2125



BILLING: P/P

Reference No. 1: WILLIAMS 292

XOL19-09-23 NV45 15.0A 07/2019



-----Please fold or cut in half-----

SENDER'S RECEIPT

Airbill#: 1Z8797VV0393642125

To(Company):
Fairmount Township Supervisors
383 Municipal Road
BENTON, PA 17814
United States

Attention To: TO WHOM IT MAY CONCERN

Phone#: 570-864-2495

Sent By: Sue Fox

Phone#: 814-689-1650

Date Printed: 2019-09-27

Ship Date: 2019-09-25

Rate Estimate: 15.62

Protection: Amount: \$

Protection: Value: \$ 0.00 (inclusive of all pkgs)

Description:

Weight: 2

Dimensions: x x

Ship Ref1: WILLIAMS 292

Ship Ref2:

Service Level: Ground

Special Service:

COD Amount:

Payment Options:

Bill Shipment To: Sender

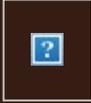
Bill To Account: 8797VV

UPS Signature (optional) _____ Route _____ Date _____ Time _____



For Tracking, please go to www.ups.com or call 1-800-PICK-UPS
Thank you for shipping with UPS Worldwide Express

From: [UPS Quantum View](#)
To: [Kevin Clark](#)
Subject: UPS Delivery Notification, Tracking Number 1Z8797VV0393642125
Date: Thursday, September 26, 2019 3:57:40 PM



Your package has been delivered.

Delivery Date: Thursday, 09/26/2019

Delivery Time: 03:51 PM

At the request of WHM CONSULTING, INC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z8797VV0393642125
Ship To:	TO WHOM IT MAY CONCERN Fairmount Township Supervisors 383 MUNICIPAL RD BENTON, PA 17814 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	2.0 LBS
Reference Number 1:	WILLIAMS 292



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September 25, 2019

UPS TRACKING (1Z8797VV0395192715)

Luzerne County Planning Commission
20 North Pennsylvania Avenue
Wilkes-Barre, PA 18711

Re: Leidy South Project – Compressor Station 607
Pennsylvania Acts 14, 67, 68, and 127 Notification
Fairmount Township, Luzerne County, Pennsylvania

Dear Luzerne County Commissioners:

The purpose of this notice is to inform you of Transcontinental Gas Pipe Line Company, LLC's (Transco), a subsidiary of Williams Partners L.P. (Williams), intent to submit a Chapter 105 Water Obstruction and Encroachment Permit to the Pennsylvania Department of Environmental Protection (PADEP) in accordance with 25 Pennsylvania Code §105.13(e)(l)(v), Transco is providing this stormwater management analysis for Project impacts within Fairmount Township, Lycoming County.

Project Description: The Leidy South Project (Project) is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Compressor Station 607 will consist of the installing two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres.

Stormwater Management Analysis: The proposed Project will have minimal impacts during construction and post-construction to stormwater storage and control, with no long-term impacts anticipated. All aboveground facilities will be located outside of FEMA floodplains, FEMA floodways and 50-foot floodways. The post-construction design will have result in the increase of impervious area, the impact of which will be mitigated through stormwater management design, which will promote infiltration at the site through the implementation of an infiltration basin and wet detention pond. Erosion controls which will be installed during construction have been designed to avoid impacts to natural drainage features. These controls will only have temporary impacts while installed and will be removed once the site is stabilized with vegetation. The proposed post-construction stormwater management best management design will result in no net increase in the rate of stormwater runoff and minimize any increase in stormwater runoff volume.

Enclosed you will find a USGS Project Location Map, Erosion and Sediment Control and Site Restoration Plan, Post-Construction Stormwater Management Plan Drawings, and General Information Form to assist in your review. Transco is requesting that the County provide a consistency letter verifying the stormwater management analysis. This consistency letter is required as part of the Chapter 105 Water Obstruction and Encroachment Permit being submitted to the PADEP Regional Permit Coordination Office.

Please forward the consistency letter to:

Kevin M. Clark
WHM Consulting, Inc.
2525 Green Tech Drive; Suite B
State College, PA 16803

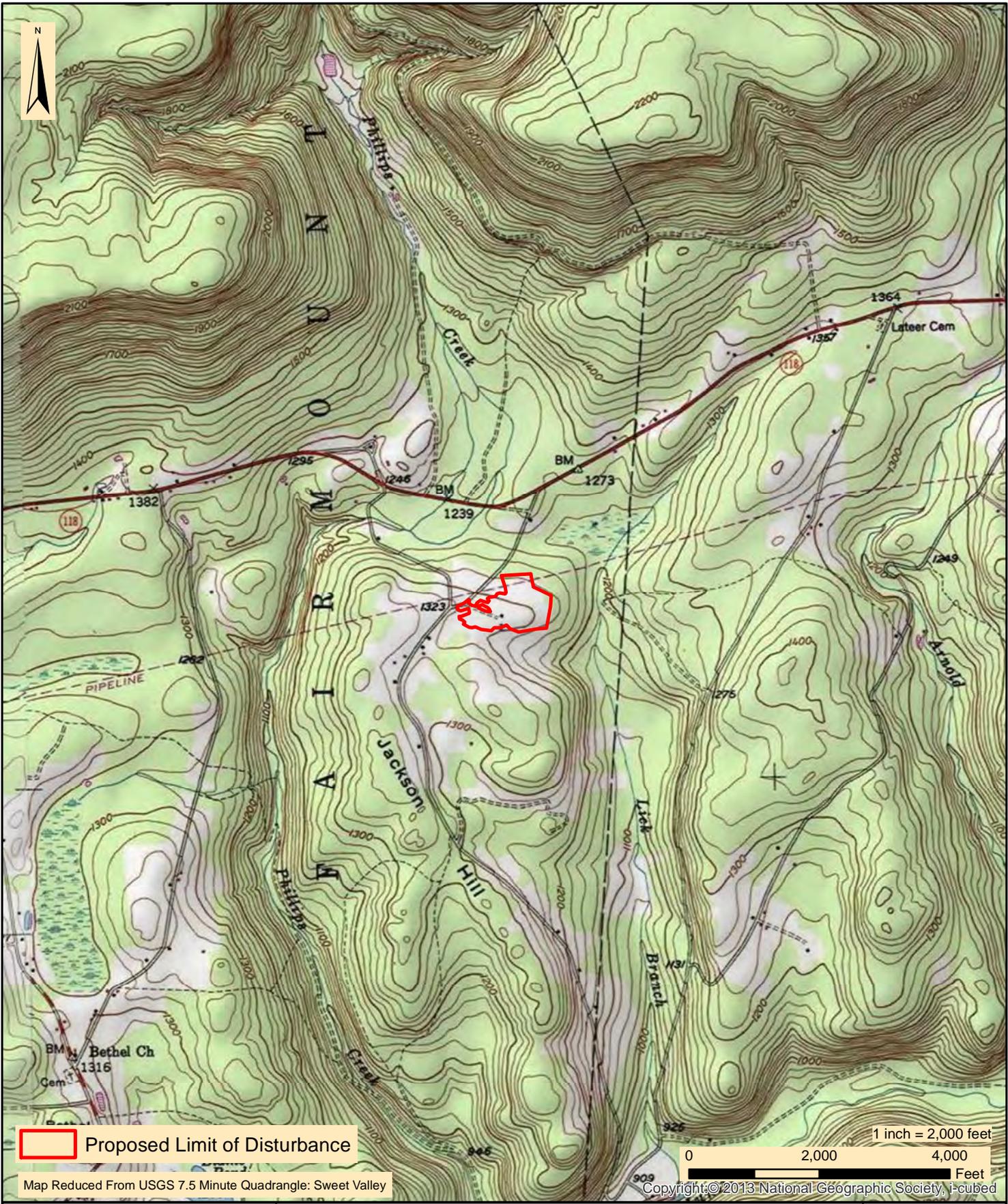
Sincerely,



Kevin M. Clark, PWS
WHM Consulting, Inc.

Enclosures: ESCP & SR Plan Drawings
 PCSM Plan Drawings
 PADEP GIF Form
 Project Location Map

USGS PROJECT LOCATION MAP



Proposed Limit of Disturbance

Map Reduced From USGS 7.5 Minute Quadrangle: Sweet Valley

1 inch = 2,000 feet
 0 2,000 4,000 Feet
 Copyright © 2013 National Geographic Society, i-cubed



designs, permits, resolutions
consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
 NEW **PROPOSED** COMPRESSOR STATION 607
 PROJECT LOCATION MAP

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

Date:	8/21/2019
WHM Drawing Number:	WILLIAMS204A001
Drawn By:	FTN
Figure Number:	5

GENERAL INFORMATION FORM

Form



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

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

CLIENT INFORMATION

DEP Client ID# 82494	Client Type / Code LLC		
Organization Name or Registered Fictitious Name Transcontinental Gas Pipe Line Company, LLC.		Employer ID# (EIN) 74-1079400	Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix SSN
Additional Individual Last Name	First Name	MI	Suffix SSN
Mailing Address Line 1 2800 Post Oak Blvd, Level 11		Mailing Address Line 2	
Address Last Line – City Houston		State PA	ZIP+4 77056
Client Contact Last Name Dean		First Name Joseph	MI Suffix
Client Contact Title Environmental Manager		Phone 713-215-3427	Ext
Email Address Joesph.Dean@williams.com		FAX	

SITE INFORMATION

DEP Site ID#	Site Name Leidy South Project - Compressor Station 607		
EPA ID#	Estimated Number of Employees to be Present at Site		
Description of Site Rural, agricultural and forested area adjacent to/overlapping an existing natural gas pipeline right-of-way.			
County Name Luzerne	Municipality Fairmount	City <input type="checkbox"/>	Boro <input type="checkbox"/>
County Name	Municipality	City <input type="checkbox"/>	Boro <input type="checkbox"/>
County Name	Municipality	Twp <input checked="" type="checkbox"/>	State
Site Location Line 1 78 Maransky Road	Site Location Line 2		
Site Location Last Line – City Sweet Valley	State PA	ZIP+4 18656	
Detailed Written Directions to Site From Dallas, PA: At traffic circle take the 3 rd exit and stay on PA-415 North for 1.7 miles. Turn left on PA-118 West and go 13.3 miles. Turn left onto Jackson Hill Road/Maransky Road go 0.4 mile, destination will be on the left.			
Site Contact Last Name Dean	First Name Joseph	MI	Suffix
Site Contact Title Environmental Manager	Site Contact Firm Transcontinental Gas Pipe Line Company, LLC		
Mailing Address Line 1 2800 Post Oak Blvd., Level 11	Mailing Address Line 2		

Mailing Address Last Line – City Houston			State TX	ZIP+4 77056
Phone 713-215-3427	Ext	FAX	Email Address Joseph.Dean@williams.com	
NAICS Codes (Two- & Three-Digit Codes – List All That Apply) 221			6-Digit Code (Optional)	
Client to Site Relationship OWN				

FACILITY INFORMATION

Modification of Existing Facility		Yes	No
1.	Will this project modify an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Will this project involve an addition to an existing facility, system, or activity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>If "Yes", check all relevant facility types and provide DEP facility identification numbers below.</i>			

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

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
41.298049, -76.222742	41	17	53	76	13	22
Horizontal Accuracy Measure	Feet		--or--	Meters		
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input checked="" type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code	GISDR					
Reference Point Code	CNTAR					
Altitude	Feet	1310	--or--	Meters		
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input checked="" type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code	TOPO					
Geometric Type Code	POINT					
Data Collection Date	08/16/19					
Source Map Scale Number	1	Inch(es)	=	24,000	Feet	
	--or--	Centimeter(s)	=	Meters		

PROJECT INFORMATION

Project Name Leidy South Project - Compressor Station 607			
Project Description Compressor Station 607 will consist of installing two Solar Titan 130 gas driven turbine compressor units (23,465 nominal HP at International Organization for Standardization (ISO) conditions each, 46,930 HP total) and gas coolers. The total earth disturbance for the Project in Luzerne County is 18.25 acres. Because the Project is governed by the Natural Gas Act, the Federal Energy Regulatory Commission (FERC) has exclusive jurisdiction over siting; therefore, local zoning is preempted.			
Project Consultant Last Name Clark	First Name Kevin	MI M.	Suffix

Project Consultant Title Project Manager		Consulting Firm WHM Consulting, Inc.	
Mailing Address Line 1 2525 Green Tech Drive Suite B		Mailing Address Line 2	
Address Last Line – City State College		State PA	ZIP+4 16841
Phone 814-689-1560	Ext	FAX 814-689-1557	Email Address kevinc@whmgroup.com
Time Schedules Winter 2020/2021	Project Milestone (Optional) Commence Construction		
December 1, 2021	In service Date		

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** Yes No

2. **Is your project funded by state or federal grants?** Yes No
Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
 Aspect of Project Related to Grant _____
 Grant Source: _____
 Grant Contact Person: _____
 Grant Expiration Date: _____

3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** Yes No
Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
 If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION

- Note:** Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.
1. **Is there an adopted county or multi-county comprehensive plan?** Yes No

 2. **Is there an adopted municipal or multi-municipal comprehensive plan?** Yes No

 3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** Yes No
Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
 If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.

 4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** Yes No
 If zoning approval has been received, attach documentation.

 5. **Have you attached Municipal and County Land Use Letters for the project?** Yes No

COORDINATION INFORMATION

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

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

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

1.0	Is this a coal mining project? If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
1.1	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.2	Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.3	Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.4	For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.5	Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
1.6	Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.0	Is this a non-coal (industrial minerals) mining project? If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
2.1	Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.2	Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.3	Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.4	For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
2.5	Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No

3.0	Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well? If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
3.1	Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.2	Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system? If "Yes", discuss in <i>Project Description</i> .	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
3.3	Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
4.0	Will the project involve a construction activity that results in earth disturbance? If "Yes", specify the total disturbed acreage. 4.0.1 Total Disturbed Acreage 18.25	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.0	Does the project involve any of the following? If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.1	Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.2	Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
5.3	Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
6.0	Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
7.0	Will the project involve the construction and operation of industrial waste treatment facilities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
8.0	Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations? If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the <i>Project Description</i> , where applicable. 8.0.1 Estimated Proposed Flow (gal/day)	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0	Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
9.0.1	Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval.	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
10.0	Is this project for the beneficial use of biosolids for land application within Pennsylvania? If "Yes" indicate how much (i.e. gallons or dry tons per year). 10.0.1 Gallons Per Year (residential septage) _____ 10.0.2 Dry Tons Per Year (biosolids) _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
11.0	Does the project involve construction, modification or removal of a dam? If "Yes", identify the dam. 11.0.1 Dam Name _____	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No

12.0	Will the project interfere with the flow from, or otherwise impact, a dam? If "Yes", identify the dam.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
12.0.1	Dam Name				
13.0	Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)? If "Yes", identify each type of emission followed by the amount of that emission.	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
13.0.1	Enter all types & amounts of emissions; separate each set with semicolons.	Summary of Compressor Station 607 Operational Potential to Emit (PTE): NOx - 54.83; CO - 47.45; VOC - 13.43; SO2 - 5.87; PM10 - 11.44; PM2.5 - 11.44; Single HAP - 5.01; Total HAP - 5.6; CO2e - 208,400.1 = Annual (tpy)			
14.0	Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year? If "Yes", check all proposed sub-facilities.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
14.0.1	Number of Persons Served	_____			
14.0.2	Number of Employee/Guests	_____			
14.0.3	Number of Connections	_____			
14.0.4	Sub-Fac: Distribution System	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.5	Sub-Fac: Water Treatment Plant	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.6	Sub-Fac: Source	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.7	Sub-Fac: Pump Station	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.8	Sub Fac: Transmission Main	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.0.9	Sub-Fac: Storage Facility	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
15.0	Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0	Is your project to be served by an existing public water supply? If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.0.1	Supplier's Name	_____			
16.0.2	Letter of Approval from Supplier is Attached	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
17.0	Will this project involve a new or increased drinking water withdrawal from a stream or other water body? If "Yes", should reference both Water Supply and Watershed Management.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
17.0.1	Stream Name	_____			
18.0	Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste? If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
18.0.1	Type & Amount	_____			
19.0	Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0	Does your project involve installation of a field constructed underground storage tank? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
20.0.1	Enter all substances & capacity of each; separate each set with semicolons.	_____			
21.0	Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility? If "Yes", list each Substance & its Capacity. Note: Applicant may need a Storage Tank Site Specific Installation Permit.	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
21.0.1	Enter all substances & capacity of each; separate each set with semicolons.	_____			

22.0 Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

22.0.1 Enter all substances & capacity of each; separate each set with semicolons.

23.0 Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons? If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. Yes No

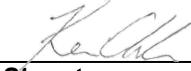
23.0.1 Enter all substances & capacity of each; separate each set with semicolons.

24.0 Will the intended activity involve the use of a radiation source? Yes No

CERTIFICATION

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

Type or Print Name Kevin M. Clark



Project Manager

08/28/2019

Signature

Title

Date

1 OF 1

2 LBS

SUE FOX
8146891650
WHM CONSULTING, INC
2525 GREEN TECH DR # B
STATE COLLEGE PA 16803

SHIP TO:
TO WHOM IT MAY CONCERN
5708251560
LUZERNE COUNTY PLANNING COMMISSION
20 NORTH PENNSYLVANIA OFFICE
WILKES BARRE PA 18711

PA 186 9-20



UPS GROUND
TRACKING #: 1Z 879 7VV 03 9519 2715



BILLING: P/P

Reference No. 1: WILLIAMS 202

XOL19.09.23 INV45 15.0A 07/2019



-----Please fold or cut in half-----

SENDER'S RECEIPT

Airbill#: 1Z8797VV0395192715

To(Company):
Luzerne County Planning Commission
20 North Pennsylvania Office
WILKES BARRE, PA 18711
United States

Attention To: TO WHOM IT MAY CONCERN

Phone#: 570-825-1560

Sent By: Sue Fox

Phone#: 814-689-1650

Date Printed: 2019-09-27

Ship Date: 2019-09-25

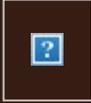
Rate Estimate: 12.62
 Protection: Amount: \$
 Protection: Value: \$ 0.00 (inclusive of all pkgs)
 Description:
 Weight: 2
 Dimensions: x x
 Ship Ref1: WILLIAMS 202
 Ship Ref2:
 Service Level: Ground
 Special Service:
 COD Amount:
 Payment Options:
 Bill Shipment To: Sender
 Bill To Account: 8797VV

UPS Signature (optional) _____ Route _____ Date _____ Time _____



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Thank you for shipping with UPS Worldwide Express

From: [UPS Quantum View](#)
To: [Kevin Clark](#)
Subject: UPS Delivery Notification, Tracking Number 1Z8797VV0395192715
Date: Thursday, September 26, 2019 12:19:01 PM



Your package has been delivered.

Delivery Date: Thursday, 09/26/2019
Delivery Time: 12:11 PM

At the request of WHM CONSULTING, INC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z8797VV0395192715
Ship To:	TO WHOM IT MAY CONCERN Luzerne County Planning Commission 20 N PENNSYLVANIA AVE ROOM 208 WILKES BARRE, PA 18711 US
UPS Service:	UPS GROUND
Number of Packages:	1
Weight:	2.0 LBS
Delivery Location:	FRONT DESK WOOD
Reference Number 1:	WILLIAMS 202



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*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT P
FLOODPLAIN MANAGEMENT ANALYSIS**

FLOODPLAIN MANAGEMENT ANALYSIS

There are no delineated FEMA Floodways located within the proposed Compressor Station 607 Project area. Therefore, as per Chapter 105.13 (e)(1)(vi) of the PA Code, a Floodplain Analysis and Consistency Letter is not required for the Project.

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT Q RISK ASSESSMENT ANALYSIS

RISK ASSESSMENT

A Risk Assessment was conducted for the Compressor Station 607, as part of Leidy South Project. The assessment has taken into consideration the Floodplain Management Analysis and Stormwater Management Analysis included within Requirements O and P of the Permit Application.

A Floodplain Management Analysis was not completed because there are no delineated FEMA Floodways located within the proposed Compressor Station 607 Project area.

In respect to the Stormwater Management, no increase in peak rates of stormwater runoff is proposed. The Post Construction Stormwater Management (PCSM) Plan is designed to mitigate against an increase in peak rates.

Because there are no FEMA Floodway located within the Project area and an increase in peak runoff rates for stormwater is not anticipated, no further affects analysis has been completed as part of the Risk Assessment.

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**REQUIREMENT R
PROFESSIONAL'S SEAL**

*Leidy South – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC
Requirement R – Professional’s Seal*

The professional engineer’s seal has been included on the cover of the Chapter 105 Impact drawings included in Requirement H.

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT S ALTERNATIVE ANALYSIS



Transcontinental Gas Pipe Line Company, LLC

Requirement S – Alternatives Analysis

Leidy South Project – Compressor Station 607

September 2019
(Revised May 2020)

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 - 2.2 System Alternatives Analysis
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 - 2.2.2 Compressor Station Loop Intensive Alternatives
 - 2.2.2.1 Loop-Intensive Alternative to Compressor Station 607
 - 2.2.3 System Alternatives Analysis Conclusions
 - 2.3 Compressor Station Alternatives**
 - 2.3.1 Compressor Station Siting Methodology
 - 2.3.2 Compressor Station 607
 - 2.3.2.1 Compressor Station 607 Option A *(Revised May 2020)*
 - 2.3.2.2 Compressor Station 607 Option B
 - 2.3.2.3 Compressor Station 607 Conclusion
- 3.0 Impact Minimization of the Proposed Alternative**
 - 3.1 Compressor Station Workspace *(Revised May 2020)*
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Figures

- 10A-2 – Loop Intensive Alternative to Compressor Station 607
- 10-A-8 – Compressor Station 607 Option A Alternative
- 10-A-9 – Compressor Station 607 Option B Alternative

ALTERNATIVE ANALYSIS

1.0 Introduction

Transco is proposing the Leidy South Project (Project). The Project is an expansion of Transco's existing natural gas transmission system and an extension of Transco's system through a capacity lease with National Fuel Gas Supply Corporation. The Project will enable Transco to provide 582,400 dekatherms per day (Dth/d) of incremental firm transportation capacity for abundant supplies of natural gas from northern and western Pennsylvania to existing and growing markets in Transco's Zone 6. Transco's Zone 6 includes the portion of the Transco system in Pennsylvania, New York, New Jersey, and Maryland. The Project consists of the following components:

- 6.3 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hensel Replacement) and the related abandonment of 5.8 miles of existing 23.375-inch pipeline on Leidy Line A;
- 2.4 miles of 36-inch pipeline loop along Transco's Leidy Line in Clinton County, Pennsylvania (Hilltop Loop);
- 3.5 miles of 42-inch pipeline loop along Transco's Leidy Line in Lycoming County, Pennsylvania (Benton Loop);
- Existing Compressor Station 605 (Wyoming County, Pennsylvania);
 - Increase the total certificated horsepower of the two electric motor-driven units from 30,000 horsepower (HP) to 42,000 HP and modifications to existing coolers;
- New Compressor Station 607 (Luzerne County, Pennsylvania);
 - Install two gas turbine-driven compressor units (23,465 nominal HP at International Organization for Standardization [ISO] conditions each, 46,930 HP total) and gas coolers;
- Existing Compressor Station 610 (Columbia County, Pennsylvania);
 - Add one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions) and gas cooling;

- Increase the total certificated horsepower of the two electric motor-driven units from 40,000 HP to 42,000 HP and re-wheel the existing compressors;
- New Compressor Station 620 (Schuylkill County, Pennsylvania);
 - Install one gas turbine-driven compressor unit (31,871 nominal HP at ISO conditions);
- Ancillary facilities, such as mainline valves (MLVs), communication facilities, cathodic protection and pig launchers and receivers in Pennsylvania.

Subject to FERC approval of the Project and receipt of the necessary permits and authorizations, Transco anticipates that construction of the Project will commence in winter 2020/2021 to meet a target in-service date of December 1, 2021.

This alternatives analysis is consistent with the Federal Energy Regulatory Commission's (FERC) regulatory requirements as set forth in 18 Code of Federal Regulations 380.15 and 25 PA. Code § 105.13(e)(viii). Thus, it contains a detailed analysis of alternatives to the proposed action, including alternative locations, routings or designs to avoid or minimize environmental impacts.

2.0 Design Alternatives

Transco's Precedent Agreements with Seneca Resources Corporation, Cabot Oil & Gas Corporation and UGI Utilities require Transco to provide the requested incremental capacity from the existing Leidy Hub and Zick Receipt Point to Transco's River Road Regulator Station in Lancaster County, Pennsylvania. Transco completed hydraulic modeling to identify the scope of facilities and facility modifications required to meet the Project's purpose and need. Then, as outlined in the following sections, evaluated these alternatives to determine which set of facilities provided the best opportunity to avoid and minimize environmental impacts while still meeting the contractual obligations of the project.

2.1 No-Action Alternative

Under the No-Action Alternative, the Project would not be constructed or operated. The potential environmental impacts of construction and operation of the Project would not occur; however, this alternative would not meet the purpose and need for the Project.

The No-Action Alternative would prevent Transco from providing 582,400 Dth/d of incremental firm transportation capacity to Transco's River Road Regulator Station in Lancaster

County, Pennsylvania. In addition, this alternative would prevent Transco from providing additional takeaway capacity from the Marcellus and Utica Shale production areas to support future gas production, and from supporting the overall reliability and diversification of energy infrastructure along the Atlantic seaboard.

The No-Action Alternative would not meet the purpose of the Project, which is to alleviate the constrained takeaway capacity from the Marcellus and Utica Shale production areas and support the overall reliability and diversification of energy infrastructure along the Atlantic seaboard. This assessment is based, in part, on an analysis of existing Transco facilities in or near the Project area, which do not provide adequate pipeline takeaway capacity for transportation of natural gas to meet current transportation demand (see Section 10.4).

If the No-Action Alternative is selected, Transco's customers will need to:

- Seek other transportation services;
- Forgo meeting their natural gas demand until energy conservation measures stabilize or decrease demand, possibly limiting their growth and the growth of the local economies they serve; and
- Depend on other future development projects with unpredictable schedules and undetermined environmental impacts.

Because existing alternative sources of energy, conservation, and other projects are currently impractical, not available, and/or insufficient to meet the transportation demand addressed by the Project, the No-Action Alternative cannot be the proposed alternative. The No-Action Alternative does not meet the Project objectives of providing the additional transportation capacity of natural gas requested by its customers within the required time frame.

2.2 System Alternatives

System alternatives are alternatives to the proposed action that would make use of other existing, modified, or proposed pipeline systems to meet the purpose and need of the proposed Project. A system alternative would make it unnecessary to construct all or part of the proposed Project, although some modifications or additions to another existing pipeline system may be required to increase its capacity, or another entirely new system may need to be constructed. Such modifications or additions would result in environmental impacts that could be less than, similar to, or potentially greater than those associated with the proposed Project.

In order to be a viable system alternative to the proposed Project, potential system alternatives must meet three criteria:

- The system must be capable of transporting up to 582,400 Dth/d of natural gas to growing markets in Transco's Zone 6;
- The system alternative must be capable of transporting the required volumes within the same schedule as the proposed Project;
- Use of an alternative system must be able to meet the criteria above and at the same time result in reduced environmental impacts when compared to the proposed Project.

2.2.1 Existing Pipeline Systems

Transco operates the Transco Leidy Line system, Central Penn Line (CPL) system, and the Mainline system within the Project area. Transco's existing systems do not have any available unsubscribed capacity to service the volume under contract for the Project. Therefore, Transco's systems currently are not capable of providing an incremental 582,400 Dth/d of year-round firm transportation capacity from the Marcellus and Utica Shale production areas in northern and western Pennsylvania to Transco's Mainline at the River Road Regulator Station in Lancaster County, Pennsylvania.

Transco has identified four other existing interstate natural gas transmission pipeline systems in the Project area: Columbia Gas Transmission, LLC; Dominion Energy Transmission, Inc.; Tennessee Gas Pipeline; and Texas Eastern Transmission, LP. Based on review of unsubscribed capacity, none of these existing pipeline systems are presently capable of transporting the 582,400 Dth/d without expansion of their existing systems or construction of new systems (Columbia Gas Transmission, LLC 2019; Dominion Energy, Inc. 2019; Tennessee Gas Pipeline Company L.L.C. 2019; Texas Eastern Transmission, LP 2019).

Transco does not have access to the proprietary design criteria and operational data of other pipeline operators' respective systems; however, enough public information is available to estimate the systems capabilities. Using this information, Transco concludes that these existing pipeline systems are not presently capable of transporting the required volumes without expansion of their existing system or construction of a new system to meet the Project objective of providing an incremental 582,400 Dth/d of year-round firm transportation capacity from the Marcellus and Utica Shale production areas in northern and western Pennsylvania to Transco's

Mainline at the River Road Regulator Station in Lancaster County, Pennsylvania. Furthermore, modifications to any other company’s pipeline system would likely require an interconnect with, and expansion of, Transco’s Mainline system to transport incremental volumes to Transco’s existing market areas. Such modifications or additions would result in environmental impacts that could be equal to or greater than those associated with the proposed Project.

2.2.2 Compressor Station Loop Intensive Alternatives

Transco identified four loop-intensive system alternatives in lieu of installing additional HP at existing compressor stations, and/or in lieu of new compressor stations. The loop-intensive alternatives would emphasize the use of pipeline looping along the existing CPL assets to meet the Project capacity demand. The loop-intensive system alternatives are listed below. For the purposes of this comparison, Transco assumed each alternative would be fully co-located with the existing CPL rights-of-ways (ROWs). Note that the distance between beginning and ending mileposts (MPs) may not reflect the actual length of each potential loop; the length of each loop is based on the distance between MPs along existing pipelines. Thus, crossover or variations of the pipeline loops would lengthen the mileage when compared to the existing pipelines and MPs. The loop intensive alternatives were considered to replace the additional compression (i.e., new compressor stations and modifications to existing compressor stations) proposed by the Project. Under each loop intensive alternative, the Hensel Replacement, Hilltop Loop, and Benton Loop would still be required to meet the Project’s purpose and need.

2.2.2.1 Loop-Intensive Alternative to Compressor Station 607

Transco considered a loop-intensive alternative that would eliminate the need to install new Compressor Station 607. The Loop-Intensive Alternative to Compressor Station 607 would require 16.9 miles of 36-inch loop from the Zick Interconnect to CPL North MP 43.8 in Susquehanna and Wyoming Counties, Pennsylvania (see Figure 10A-2). Table 2-1 provides a comparison of the environmental impacts of the Project (Compressor Station 607) and this loop-intensive alternative.

**Table 2-1
Comparison of the Environmental Impacts of Compressor Station 607 and the Loop-Intensive Alternative**

Factor	Unit	Compressor Station 607	Loop-Intensive Alternative
Length of pipeline	Miles	N/A	16.9
Construction ROW ^a	Acres	18.0	204.5
Operation ROW ^a	Acres	12.3	51.1

**Table 2-1
 Comparison of the Environmental Impacts of Compressor Station 607 and the Loop-Intensive Alternative**

Factor	Unit	Compressor Station 607	Loop-Intensive Alternative
Construction impacts on forested land	Acres	3.2	109.8
Operation impacts on forested land	Acres	2.5	27.3
Construction impacts on wetlands (NWI)	Acres	0.0	2.3
Operation impacts on wetlands (NWI)	Acres	0.0	0.6
Number of waterbody crossings (NHD)	Count	0	0
Number of stream crossings (NHD)	Count	0	29
Number of residences within 50 feet of the construction ROW	Count	0	0
Number of landowners crossed by the construction ROW	Count	0	105
Sources: USFWS 2016; USGS 2016			
^a Assumes a construction ROW width of 100 feet and an operational ROW of 25 feet on the outermost existing CPL. The additional 25 feet of permanent ROW overlaps with existing, maintained Transco ROW and was therefore not included in this impact analysis.			
Key: N/A = not applicable NHD = National Hydrographic Database NWI = National Wetlands Inventory ROW = Right-of-way			

Construction of the additional 16.9 miles of pipeline loop would impact approximately 204.5 acres during construction and 51.1 acres during operation, and would directly impact approximately 105 new landowners, requiring a new permanent easement for its entire length. In contrast, approximately 18.0 acres would be used for construction of Compressor Station 607 and 12.3 acres would be required for its operation. Construction and operation of the new compressor station would not affect any streams, where the Loop-Intensive Alternative would cross approximately 29 streams. In addition, more impacts on wetlands, sensitive species, and cultural resources would occur with construction of pipeline looping. Based on significantly greater land requirements and corresponding environmental impacts, and affecting many more landowners, this alternative was eliminated from further consideration.

2.2.3 System Alternatives Analysis Conclusion

Without the expansion and modifications proposed for the Project, Transco’s existing facilities lack the capacity to transport additional volumes needed while maintaining the delivery volume commitments to its existing customers. Transco’s proposed Project can achieve its

objectives and maintain the overall system integrity, safety, and reliability for both new and existing customers. Transco believes that its design is as efficient as, or more efficient than, system alternatives that could be proposed to provide the same service. Since Transco can construct its facilities with construction and mitigation measures that would minimize environmental impacts, likely comparable to or less than system alternatives, system alternatives were not considered to be preferable to this Project.

2.3 Compressor Station Alternatives

Transco conducted a hydraulic analysis to determine the need for additional compression to meet the Project's purpose of supplying 582,400 Dth/d of capacity to the River Road Regulator Station. Based on the results of the hydraulic analysis, Transco identified the need for additional compression at two existing compressor stations in Pennsylvania (Compressor Station 605 and Compressor Station 610) and for two new compressor stations in Pennsylvania (Compressor Station 607 and Compressor Station 620). Transco is not proposing any alternative locations for the modifications at Compressor Station 605, Compressor Station 610 and Compressor Station 620 because these are existing facilities without wetland, stream, or floodway impacts. The following sections include a description of the various alternative sites Transco has evaluated with respect to Compressor Station 607.

2.3.1 Compressor Station Siting Methodology

Transco considered multiple factors during the compressor station site selection process. Sites were identified through a hydraulic analysis to determine the MP range on CPL North where compression is required that would allow for optimum efficiency, and to meet the required volume at the aggregated receipt points, as defined in Transco's purpose and need.

The hydraulic analysis concluded that locating Compressor Station 607 downstream of MP 7.0 would result in material pressure degradation at existing downstream delivery points. Further, any compressor station location upstream of MP 21.0 would be too close to existing Compressor Station 605, making it difficult to coordinate the operation of two compressor stations. Consequently, Transco determined that the hydraulic range for siting Compressor Station 607 is between MP 7.0 and MP 21.0 on the CPL North system.

Transco reviewed aerial imagery within the defined hydraulic range for Compressor Station 607 and screened individual parcels based on the following criteria:

- Tie-in piping: Transco evaluated parcels on or adjacent to the existing CPL North pipelines to minimize the length of suction/discharge piping connecting the compressor station to Transco's system, and the additional environmental impact associated with pipeline construction.
- Land/workspace requirements: Transco evaluated parcels larger than 40 acres to support construction and operation of the compressor station as well as maintain a buffer around the compressor station.
- Topography: Transco sought out land parcels featuring topography that minimize the extent of fill or excavation of soil required during construction of the new compressor station, including workspace needs.
- Accessibility: Transco sought to identify parcels with reliable access to existing public roads without crossing additional landowners, to minimize the length of an access road, and the additional environmental impact associated with access road construction.
- Noise sensitive areas: Transco sought parcels that allowed for an average day-night sound level not to exceed 55 decibels at NSAs, per FERC's requirements.
- Environmental considerations: Transco sought parcels that could avoid or minimize impacts to streams, floodplains, wetlands, threatened and endangered species habitat, and other sensitive natural resources. Transco also sought to avoid parcels encumbered by geologic hazards, such as abandoned mine land, to minimize the risk of landslides.
- Reasonable availability: Transco only considered parcels that could be reasonably obtained from the current landowner.

Following this process, Transco identified two potential sites for Compressor Station 607 (Options A and B). These sites were presented at the Transco Open House in February 2019. During the FERC pre-filing process, Transco engaged with FERC staff, state agencies, landowners, and other stakeholders regarding the compressor station site selection process.

In summary, Transco has identified two sites that meet the defined criteria for Compressor Station 607 (see Table 2-11). Transco evaluated potential impact parameters for the alternative compressor stations sites based on field surveys and publicly available data, including 7.5-minute USGS topographic maps, aerial photography, and available literature on environmental resources. Transco also completed Phase 1 Environmental Site Assessments.

2.3.2 Compressor Station 607

Transco identified two alternative sites, Compressor Station 607 Option A and Compressor Station 607 Option B, that met the criteria as defined above (see Figures 10A-8 and 10A-9).

2.3.2.1 Compressor Station 607 Option A

Compressor Station 607 Option A is a 93-acre parcel located in Fairmount Township, Luzerne County, Pennsylvania, and is crossed by the existing CPL North pipeline. Option A is located on a relatively flat agricultural parcel abutting Maransky Road and is surrounded by forest.

Transco identified 46 residences within 0.5-mile of the site. The closest residence is located approximately 364 feet west of the workspace for the compressor station.

Temporary construction workspace would impact 18.0 acres, and the permanent compressor station footprint would impact 12.3 acres. An existing access road totaling 765 feet would be improved on the parcel to meet the operational needs of the compressor station.

Two streams are present to the south and northeast of the parcel boundary; both are classified as or within the watershed of streams classified as High-Quality Coldwater Fishes with Migratory Fishes (HQ-CWF, MF) and Class A Wild Trout Waters. No National Hydrographic Database (NHD) mapped streams or NWI mapped wetlands are located on the site. Compressor Station 607 Option A is located within the watershed of Lick Branch. Lick Branch is located 705 feet east of the site. The nearby reach of Lick Branch is classified as High-Quality Coldwater Fisheries with Migratory Fishes (HQ-CWF, MF) and Class A Wild Trout Waters. No Federal Emergency Management Agency (FEMA) mapped floodplains are present within the site.

Field surveys identified small tributaries to Lick Branch in the southern end of the site with an abutting emergent and forested wetland complex. Several emergent wetlands and one small scrub-shrub wetland were delineated in depressions and on concaved slopes in the western and northern portions of the site. Following completion of field surveys, a site layout was designed to avoid and minimize impacts to streams, wetlands and floodplains. Water resource impacts at this site include 0.33 acre of temporary wetland impacts and no stream or floodplain impacts.

The results of the Phase 1 site assessment did not indicate any environmental liabilities or recognized environmental conditions (RECs; BAI Group 2019a).

2.3.2.2 Compressor Station 607 Option B

Compressor Station 607 Option B is a 210.8-acre parcel located in Fairmount and Ross Townships, Luzerne County, Pennsylvania, and is crossed by the existing CPL North pipeline. Compressor Station 607 Option B is located on a forested parcel.

Transco identified 33 residences within 0.5-mile of the site. The closest residence is located approximately 116 feet southeast of the workspace for the compressor station.

Temporary construction workspace would impact 77.4 acres, and the permanent compressor station footprint would impact 31.8 acres. A new access road totaling 1,127 feet would need to be constructed on the parcel.

The site is within the watershed of Lick Branch, a High Quality, Class A Wild Trout Stream. No NHD mapped streams or NWI mapped wetlands are located on the site. Compressor Station 607 Option B is also located within the watershed of Lick Branch. Lick Branch is located 270 feet west of the site. This reach of Lick Branch is classified as High-Quality Coldwater Fisheries with Migratory Fishes (HQ-CWF, MF) and Class A Wild Trout Waters. No FEMA mapped floodplains are present within the site.

Field surveys conducted identified two tributaries to Lick Branch on the site. These streams range from 2 to 4 feet wide and bisect the eastern and central portions of the site. Sixteen wetlands were also delineated during field surveys throughout the site, including PEM, PSS, and PFO wetlands. Based on land requirements and the location of both streams and wetlands on the site, Transco anticipates that approximately 164 linear feet of streams would be directly impacted, and 5.6 acres of wetlands would need to be filled to construct a compressor station on this site.

Due to the acreage of wetland impacts associated with Compressor Station 607 Option B relative to Compressor Station 607 Option A, Transco eliminated Option B from further consideration, and as such did not conduct a Phase I site assessment on Option B.

2.3.2.3 Compressor Station 607 Conclusion

Compressor Station 607 Option B featured topography that would require additional fill and/or excavation, which in turn would require additional land disturbance and result in greater impacts. Overall, Compressor Station 607 Option A would disturb fewer acres during construction and operation relative to Compressor Station 607 Option B.

Compressor Station 607 Option A impacts less wetland and avoids stream impacts, while Option B would result in up to approximately 5.6 acres of permanent wetland fill and 164 linear feet of stream impacts. Further, Compressor Station 607 Option B would result in greater forested impacts relative to Compressor Station 607 Option A. Table 2-11 provides a comparison of Compressor Station 607 Option A and Compressor Station 607 Option B. Transco selected Compressor Station 607 Option A as the proposed site. Transco has come to an agreement with the landowner to purchase the Compressor Station 607 Option A property.

**Table 2-11
 Comparison of Compressor Station 607 Alternative Sites**

Factor	Compressor Station 607 Option A (Proposed)	Compressor Station 607 Option B
Parcel area (acres)	93.0	210.8
Temporary construction workspace (acres) ^a	18.0	77.4
Permanent footprint (acres) ^a	12.3	31.8
Length of temporary access roads (feet)	0.0	0.0
Length of permanent access roads (feet) ^{a, b}	765	1,127
Length of suction and discharge piping ^c	297	268
Current Zoning Classification ^d	Agriculture/Conservation	Agriculture/Conservation
Current Land Use ^e	Hay/Agriculture	Shrub/Scrub
Land Ownership	Private	Private
Land Availability ^f	Available	Available
Permanent impacts on forested lands (acres) ^e	2.5	30.4
Temporary impacts on prime farmland ^g (acres)	17.7	0.0
Permanent impacts on prime farmland (acres) ^g	12.1	0.0
NHD waterbodies impacted (stream length, in feet) ^h	0.0	0.0
Field delineated streams (stream length, in feet) ⁱ	0.0	164
NWI wetlands impacted (acres) ^j	0.0	0.0
Field delineated wetlands (acres) ⁱ	0.3	5.6
Number of residences within 0.5 mile ^k	46	33
Distance to nearest residence (feet) ^k	364	116

**Table 2-11
 Comparison of Compressor Station 607 Alternative Sites**

Factor	Compressor Station 607 Option A (Proposed)	Compressor Station 607 Option B
Highly erodible soils (acres) ^l	<0.1	35.7
Hydric soils (acres) ^l	0.0	0.0
Shallow depth to bedrock (acres) ^l	ND	3.2
<p>^a Temporary construction workspace and permanent footprint are based on conceptual layout plans and are subject to change.</p> <p>^b Length of the access road is located within temporary construction workspace.</p> <p>^c Suction and discharge piping is required to connect a new compressor station to the existing pipeline system</p> <p>^d Current zoning designation received from Luzerne County (Weber 2019).</p> <p>^e Land use calculations based on USGS NLCD 2011 database and adjusted based on field findings.</p> <p>^f Land availability is defined as parcels that were available for purchase.</p> <p>^g Prime farmland based on SSUGRO data set</p> <p>^h Waterbodies identified based on National Hydrography Dataset (NHD).</p> <p>ⁱ Wetlands and streams were delineated between October 2018 through June 2019 by WHM</p> <p>^j Wetlands identified using the National Wetland Inventory (NWI).</p> <p>^k Residence and distances based on aerial photography. Residence counts are measured from the edge of the workspace. This distance may differ from what is included the Noise Study Reports in Appendix 9D of RR 9 as this table presents distance from the edge of the workspace, whereas the Noise Study Reports present distance from the center of the site.</p> <p>^l Soil characteristics and shallow depth to bedrock based on SSURGO data set</p> <p>Key: ND = No data within SSURGO data set</p>		

3.0 Impact Minimization of the Proposed Alternative

3.1 Compressor Station Workspace

Construction of the pipeline compressor station facilities will require temporary and permanent workspace for construction and operation of the facilities. Transco avoided and minimized impacts to the extent practical for the siting and workspace development of Compressor Station 607. Compressor Station 607 will have no permanent wetland impact and minor temporary impacts associated with construction and operation of the facility. Due to the location of existing resources onsite and the required area for construction and operation temporary wetland impacts are considered unavoidable.

4.0 Summary

An alternatives analysis has been prepared for the proposed Project, consistent with the requirements of PA Code 105.13(e)(vii). The alternatives analysis has taken a multi-tier approach, first looking at the system alternatives for Project design options, and then taking the selected system design and evaluating the alternatives, avoidance and minimization measures, and

construction techniques associated with the proposed alternative design. The Project as proposed has minimized impacts to environmental resources, while meeting the Project goals. Construction measures and methods were thoroughly evaluated to minimize effects to environmental resources, including streams and wetlands. The Project is considered water dependent, as it requires siting within water to fulfill the basic purposes of the Project, as defined by PA Code 105.13(e)(x)(C). Based upon the results of the analysis, the proposed Project meets the Project goals and is consistent with state antidegradation requirements.

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*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC
Requirement S - Alternatives Analysis*

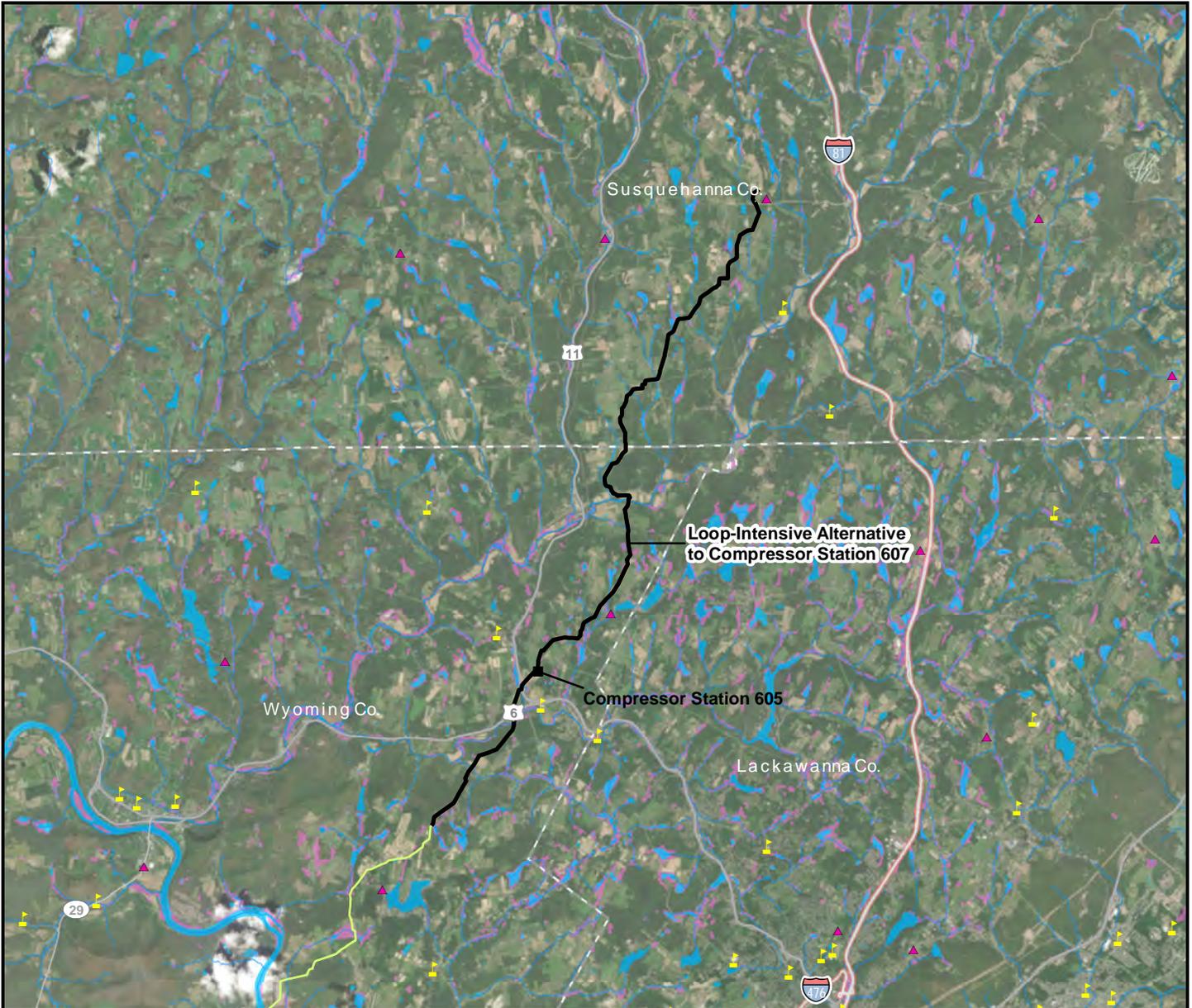
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FIGURES



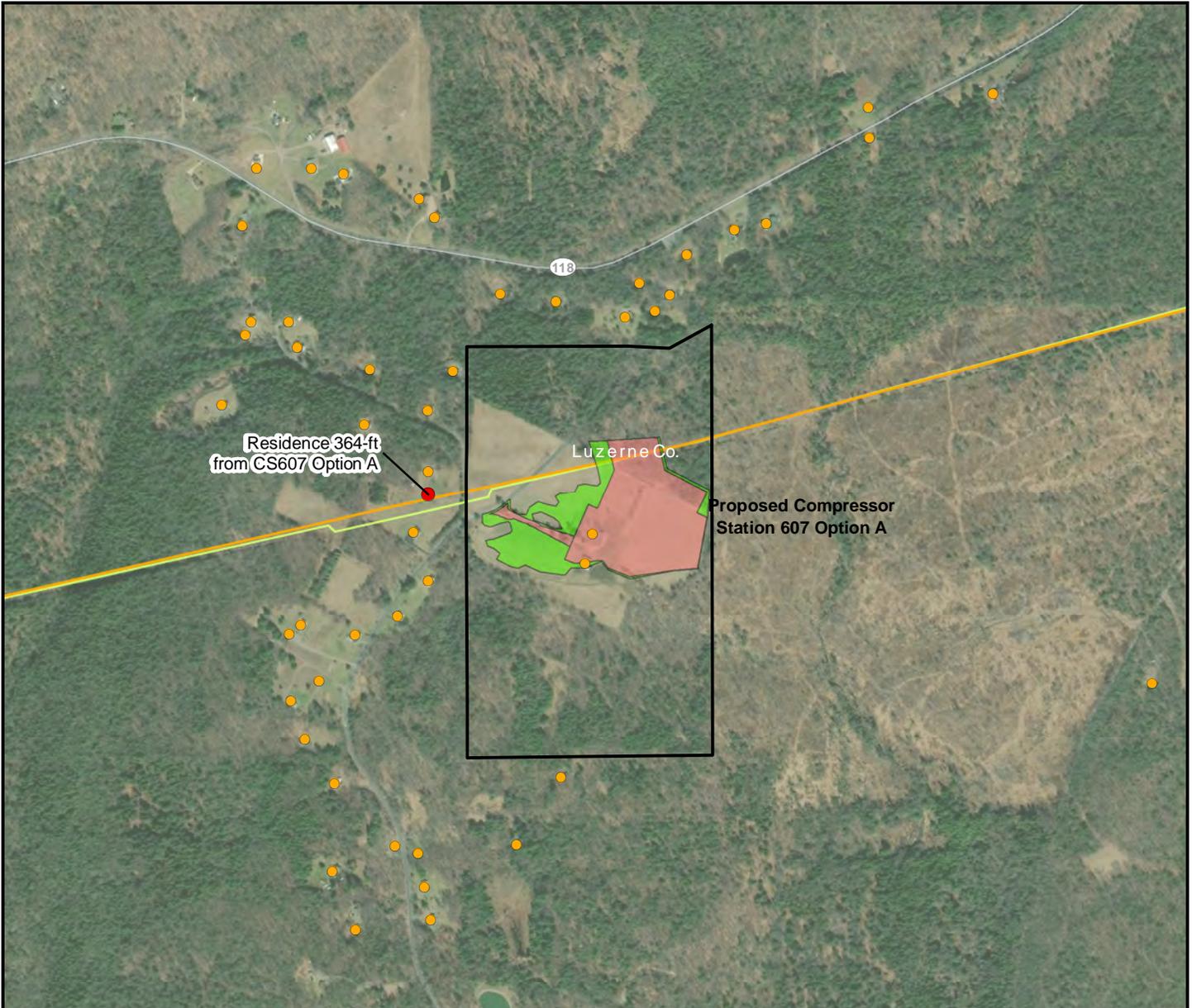
Legend:

- Aboveground Facility
- Loop-Intensive Alternative to Compressor Station 607
- Existing Transco Central Penn Line North Pipeline
- - - County Boundary
- Stream/River (NHD)
- Waterbody (NHD)
- Wetland (NWI)
- ▲ School
- ▲ Church

SITE LOCATION

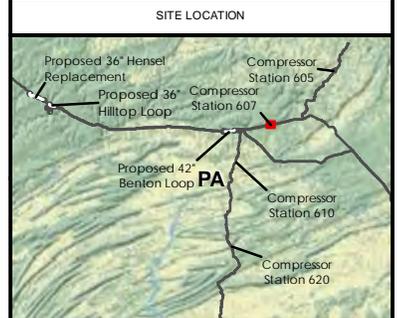


DRAWING NO.		REFERENCE TITLE		TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC LOOP-INTENSIVE ALTERNATIVE TO COMPRESSOR STATION 607 LEIDY SOUTH PROJECT PENNSYLVANIA									
		10A-2											
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.	DRAWN BY: HT	DATE: 7/18/2019	ISSUE FOR BID: N/A		SCALE: 1:200,000		
A	7/18/2019	HT	ISSUE FOR FERC APPLICATION	1211215	ES	ES	CHECKED BY: ES	DATE: 7/18/2019	ISSUE FOR CONSTRUCTION: N/A		REVISION: A		
							APPROVED BY: ES	DATE: 7/18/2019	DRAWING NUMBER: FIGURE 10A-2		SHEET 1 of 1		
							WO: 1211215					11:52 AM 7/18/2019	



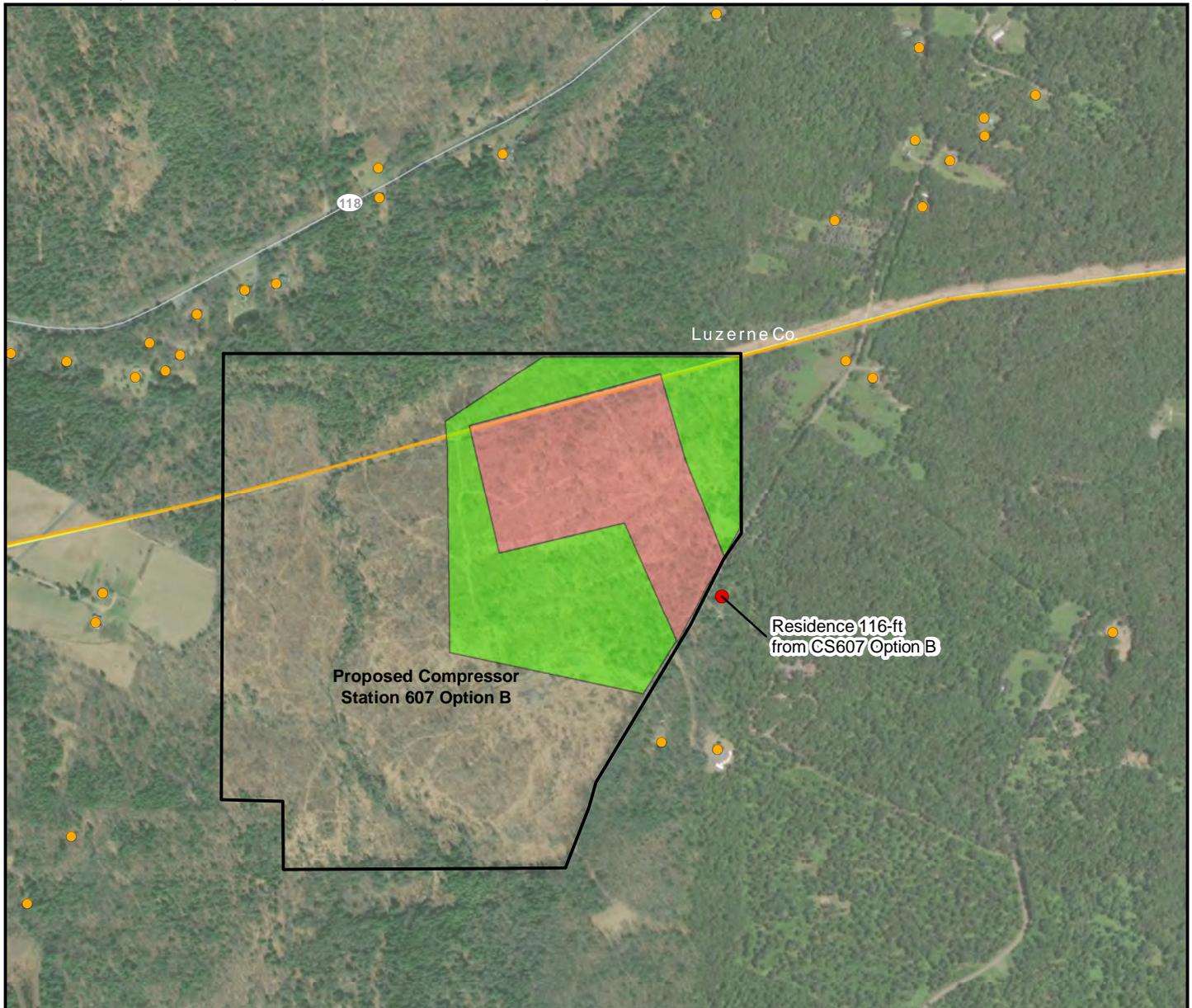
Legend:

- Compressor Station 607 Option A Alternative
- Permanent Workspace
- Temporary Workspace
- Parcel Boundary
- Nearest NSA (Residence)
- Residence
- Existing Leidy Line "A" Pipeline
- Existing Transco Central Penn Line North Pipeline



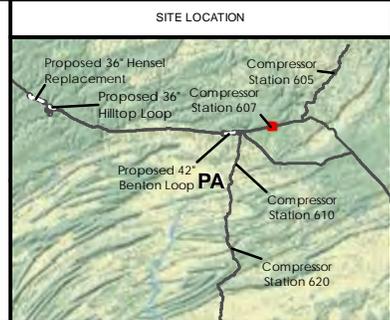
DRAWING NO.		REFERENCE TITLE		TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC COMPRESSOR STATION 607 OPTION A ALTERNATIVE LEIDY SOUTH PROJECT PENNSYLVANIA						
		10A-8								
NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.	DRAWN BY: HT	DATE: 7/23/2019	ISSUE FOR BID: N/A	SCALE: 1:12,000
A	7/23/2019	HT	ISSUE FOR FERC APPLICATION	1211215	ES	ES	CHECKED BY: ES	DATE: 7/23/2019	ISSUE FOR CONSTRUCTION: N/A	REVISION: A
							APPROVED BY: ES	DATE: 7/23/2019	DRAWING NUMBER: 1:20 PM 7/23/2019	
							WO: 1211215			

FIGURE 10A-8 SHEET 1 of 1



Legend:

- Compressor Station 607 Option B Alternative
- Permanent Workspace
- Temporary Workspace
- Parcel Boundary
- Nearest NSA (Residence)
- Residence
- Existing Leidy Line "A" Pipeline
- Existing Transco Central Penn Line North Pipeline



DRAWING NO.	REFERENCE TITLE	TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC COMPRESSOR STATION 607 OPTION B ALTERNATIVE LEIDY SOUTH PROJECT PENNSYLVANIA	
	10A-9		

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.	DRAWN BY: HT	DATE: 7/23/2019	ISSUE FOR BID: N/A	SCALE: 1:12,000
A	7/23/2019	HT	ISSUE FOR FERC APPLICATION	1211215	ES	ES	CHECKED BY: ES	DATE: 7/23/2019	ISSUE FOR CONSTRUCTION: N/A	REVISION: A
							APPROVED BY: ES	DATE: 7/23/2019		
							WO: 1211215			

DRAWING NUMBER: **FIGURE 10A-9** SHEET 1 of 1

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

REQUIREMENT T MITIGATION PLAN

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC
Requirement T – Mitigation Plan*

A Compensatory Offsite Mitigation Plan has been provided in Requirement L-5, Module S4, Appendix S4-3.

*Leidy South Project – Compressor Station 607
PA DEP Chapter 105 Joint Permit Application
Transcontinental Gas Pipe Line Company, LLC*

**APPENDIX 1
PUBLIC WATER SUPPLY REPORT**



Transcontinental Gas Pipe Line Company, LLC

Appendix 1 - Public Water Supply Report

Leidy South Project – Compressor Station 607

September 2019

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- 2.0 METHODS USED TO IDENTIFY PUBLIC WATER SUPPLIES**
- 3.0 RESULTS OF ANALYSIS**
- 4.0 REFERENCES**

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LIST OF APPENDICES

- 1 GROUNDWATER WELLS eMAPPA REVIEW
- 2 SURFACE WATER INTAKES eMAPPA REVIEW

1. Introduction

The purpose of the Public Water Supplies Summary Report (Report) is to identify all public water supplies within one mile of the project area associated with the Leidy South Project – Compressor Station 607 (Project).

2. Methods Used to Identify Public Water Supplies

As part of the permit application, a review of the public water supplies located within one mile of the project area was conducted. Groundwater wells and surface water intakes were identified as part of the Project using the PADEP eMapPA online tool. The buffer tool was used to create a one-mile buffer around the project area. The surface water intakes and groundwater wells within that buffer area were identified. The contact information for the official responsible for the water supply as well as the system name was obtained if a surface water intake or groundwater well is identified.

3. Summary of Findings

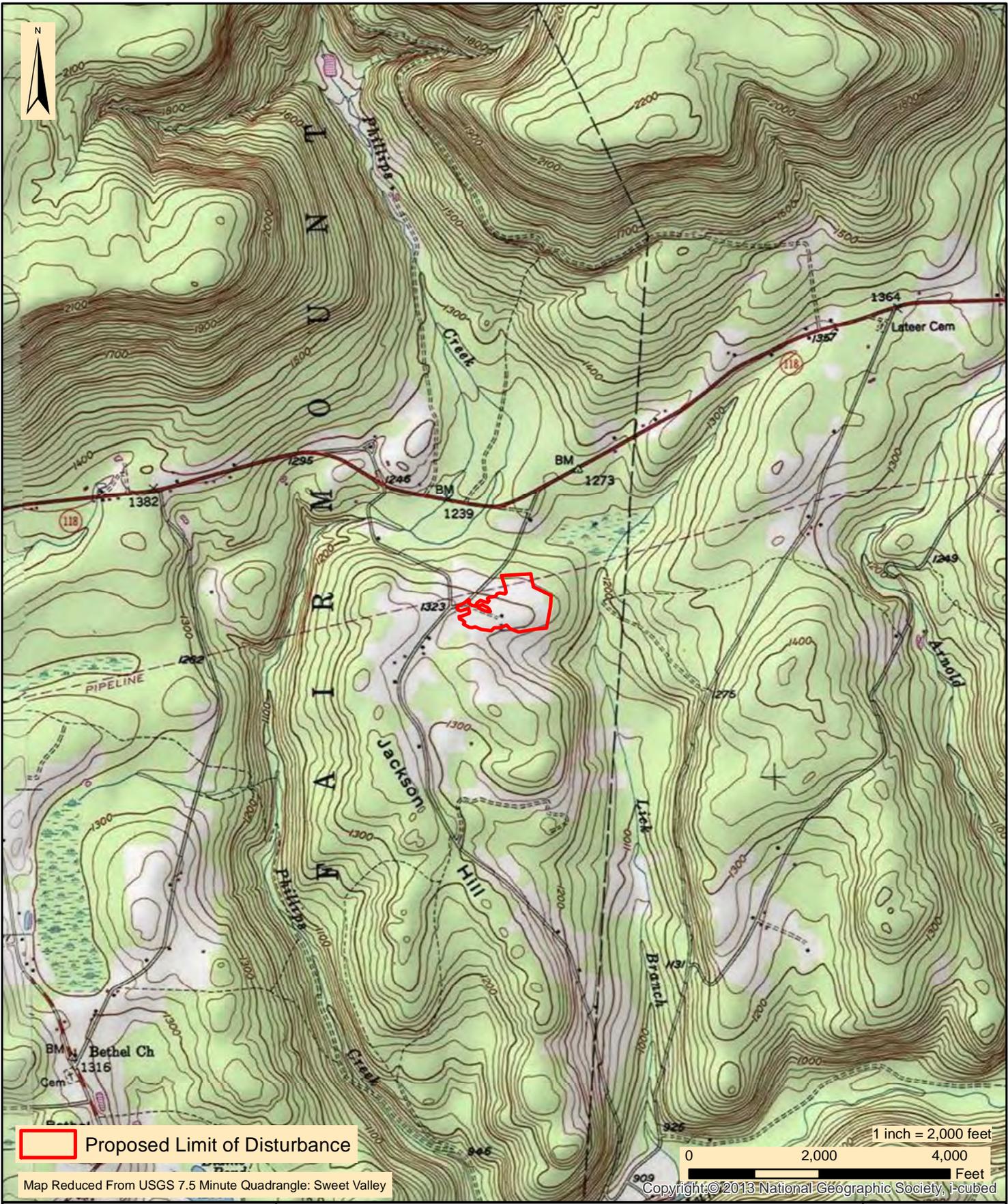
Groundwater wells and surface water intakes were identified for the Project area using eMapPA. The results, as generated by eMapPA, are included in Appendices 1 and 2. The location of the proposed Project area is provided in Figure 1. There were no surface water intakes identified within one mile of a proposed project area associated with the Project. One (1) Groundwater well was identified within one mile of the proposed project area, as summarized in Table 3-1.

Buffer No.	Public Water Supply ID	SYSTEM NAME	AREA CITY	RESPONSIBLE OFFICIER	PHONE	ID
1	2400355	Trails End Restaurant	Fairmount Township	Raymond J Stemrich	(570) 477-2556	127169

4. References

Pennsylvania Department of Environmental Protection. 2019. eMapPA. Accessed September 5, 2019.
<http://www.depgis.state.pa.us/emappa/>

FIGURES



 Proposed Limit of Disturbance

1 inch = 2,000 feet
 0 2,000 4,000 Feet

WHM
 designs, permits, resolutions
consulting, inc.
 2525 Green Tech Drive, Suite B,
 State College, PA 16803
 Tele: 814.689.1650 Fax: 814.689.1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
LEIDY SOUTH PROJECT
 NEW **PROPOSED** COMPRESSOR STATION 607
 PROJECT LOCATION MAP

Date: 8/21/2019
 WHM Drawing Number: WILLIAMS204A001
 Drawn By: FTN
 Figure Number: 5

FAIRMOUNT TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

APPENDIX 1
Groundwater Wells

Buffer Sensitive Layer (Data Only)

Buffer a
 Point Polyline Polygon

Enter buffer distance
 Miles

Layer to buffer

Extract Data

Locate

Measurement

Print

Map | **eFacts Query** | Advanced Query

ESRI Streets & Imagery | Topographic | National Geographic

Streets Imagery

Latitude: 41.298049 - Longitude: -76.222742

1 features in buffer.

PWS_ID	SYSTEM_NAME	AREA_CITY	RESPONSE
2400355	TRAILS END RESTAURANT	FAIRMOUNT TWP	RAYMOND J

Imagery: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; ESRI Streets (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Buffer Sensitive Layer (Data Only)

Buffer a
Point Polyline Polygon

Enter buffer distance
 Miles

Layer to buffer

Extract Data

Locate

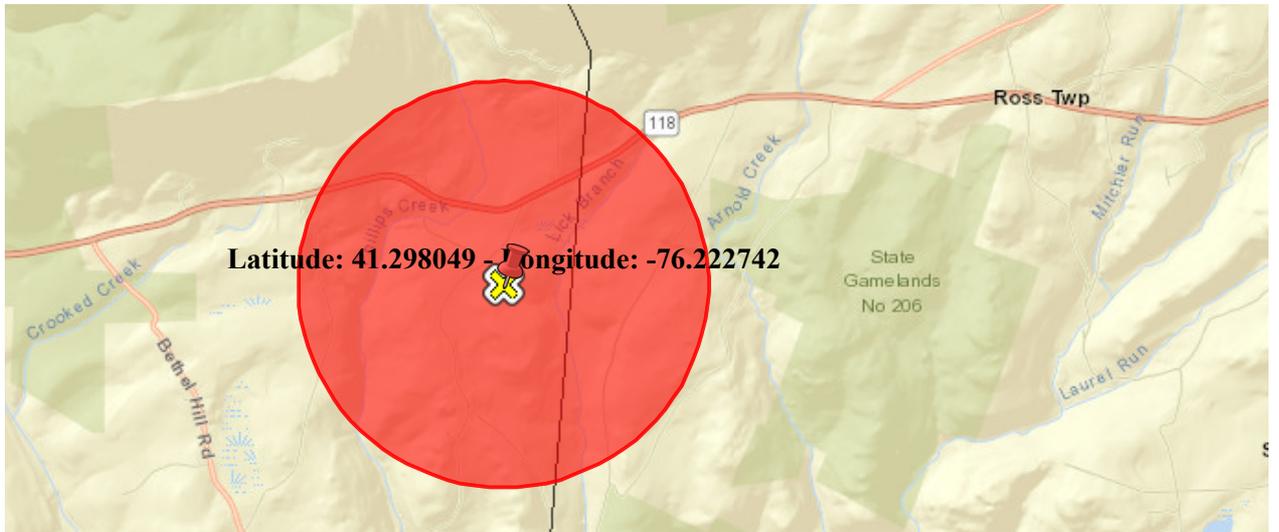
Measurement

Print

Map eFacts Query Advanced Query

ESRI Streets & Imagery Topographic National Geographic

Streets Imagery



Latitude: 41.298049 Longitude: -76.222742

0 features in buffer.

PWS_ID	SYSTEM_NAME	AREA_CITY	RESPONSIE
--------	-------------	-----------	-----------

Imagery: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community; ESRI Streets (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community