Transcontinental Gas Pipe Line Company, LLC

PA DEP Section 401 Water Quality Certification Application

Module S2 – Resource Identification and Characterization

Leidy South Project

August 2019

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Figures

MODULE S2
RESOURCE IDENTIFICATION AND CHARACTERIZATION

This module provides information related to resources present on the Project site 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 Preforming 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 Preforming 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	jenj@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	Project Component
i. National, State, or Local Park, Forest or Recreation Area	Yes	Hensel Replacement, Hilltop Loop
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	All
vi.	Source for Public Water Supply	Yes	Hensel Replacement
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 that will be provided for Chapter 102 and 105 permits. 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 is currently consulting 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 Project Area

Species Group	Species Common Name	Scientific Name	Federal Status	State Status	Project Components where Present	County of Potential Occurrence within Project Area[a]	Survey Window	Survey Status
Mammals	Indiana bat	*Myotis sodalis*	Threatened	Endangered	All Project components	Clinton, Columbia, Lycoming, Luzerne, Schuylkill, Wyoming	May 15 – August 15	Not required, implementing seasonal tree clearing restrictions
	Northern long-eared bat	*Myotis septentrionalis*	Threatened	Endangered	All Project components	Clinton, Columbia, Lycoming, Luzerne, Schuylkill, Wyoming	May 15 – August 15	Not required, implementing seasonal tree clearing restrictions
Reptile	Timber Rattlesnake	*Crotalus horridus*	Not listed	Species of Special Concern	Hensel Replacement, Hilltop Loop, Compressor Station 620	Clinton, Schuylkill	Habitat assessment: No snow cover Denning survey: April 15 – May 15	Completed
Plant	Northeastern Bulrush	*Scirpus ancistrochaetus*	Endangered	Endangered (Proposed Threatened)	All Project components	Clinton, Columbia, Lycoming, Luzerne, Schuylkill, Wyoming	June – July	Completed
	White Twisted-stalk	*Streptopus amplexifolius*	Not listed	Threatened, (Proposed Endangered)	Compressor Station 607	Luzerne	May – June	Completed
	Swamp Currant	*Ribes lacustre*	Not listed	Species of Special Concern (Proposed Endangered)	Compressor Station 607	Luzerne	May – June	Completed

Table S2.C-1
Federally and State-Listed Species Potentially Occurring Within the Project Area

Species Group	Species Common Name	Scientific Name	Federal Status	State Status	Project Components where Present	County of Potential Occurrence within Project Area[a]	Survey Window	Survey Status
	Creeping Snowberry	*Gaultheria hispidula*	Not listed	Rare	Compressor Station 607	Luzerne	June – October	Completed
	Showy Mountain-ash	*Sorbus decora*	Not listed	Endangered	Hensel Replacement	Clinton	May – October	Completed
	Bebb's Sedge	*Carex bebbii*	Not listed	Endangered	Hensel Replacement	Clinton	June – July	Completed
	Soft-leaved Sedge	*Carex desperma*	Not listed	Rare	Hensel Replacement	Clinton	May – August	Completed
	Purple Bedstraw	*Galium latifolium*	Not listed	Proposed Species of Special Concern	Hensel Replacement	Clinton	June – July	Completed

Sources: Allison 2018; Podniesinski 2018; Braun 2019; Jahrsdoerfer 2019b.

[a] 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 will be submitted to each agency as required. Consultation with each agency is ongoing for the Project.

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

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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

As noted in the USFWS correspondence dated March 5, 2019, the proposed Hensel Replacement and Hilltop Loop in Clinton County are in proximity to several northern long-eared bat captures. The northern long-eared bat is a federally-listed threatened species. As further stated in the USFWS correspondence, "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).

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, two known maternity roost trees are located near the Hensel Replacement and one known maternity roost tree is located near the Benton Loop (Lycoming County). No known maternity roost trees are located within 0.25 mile of the Hilltop Loop, Compressor Station 607, or Compressor Station 620.

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 (Podniesinski 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.

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Pennsylvania Department of Conservation and Natural Resources

The DCNR identified several target plant species within the counties crossed by the pipeline facilities (see 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 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	*Streptopus amplexifolius*	Documented in a moist shaded ravine; suitable habitat includes cool ravines	Flowers: May-June
Swamp Currant	*Ribes lacustre*	Documented in a moist shaded ravine; suitable habitat includes swamps and cold, wet woods	Flowers: May - June
Creeping Snowberry	*Gaultheria hispidula*	Documented in flat wet woods; suitable habitat includes hummocks and tree stumps in bogs and swamps	Flowers: June Fruits: September
Showy Mountain-ash	*Sorbus decora*	Documented in a tamarack swamp; suitable habitat includes rocky slopes	Flowers: May Fruits: September – October
Bebb's Sedge	*Carex bebbii*	Documented in sphagnum meadow; suitable habitat includes pond edges, boggy pastures, and moist sand flats	Fruits: June – July
Soft-leaved Sedge	*Carex disperma*	Documented in a tamarack swamp; suitable habitat includes swampy woods, bogs, and rhododendron swamps	Fruits: May-August
Purple Bedstraw	*Galium latifolium*	Documented along Hensel Fork creek; suitable habitat includes woods, rocky slopes and roadsides	Flowers: June-July
Sources: Podniesinski 2018; PNHP n.d.(b);			

Transco completed surveys for state-listed plant species identified within and surrounding the Project area. No state-listed species were identified within the LOD. The closest occurrence of a state-listed species was Purple Bedstraw along the Hensel Replacement. The population of Purple Bedstraw was located upslope of the existing and proposed ROW ranging from approximately 10 to 75 feet outside the LOD. A survey report is included in Appendix S2-3.

<u>Pennsylvania Fish and Boat Commission</u>

Timber Rattlesnake

According to correspondence with the PFBC, Hensel Replacement, Hilltop Loop, and the Compressor Station 620 site are within the range of the timber rattlesnake (*Crotalus horridus*) (Allison 2018).

The PFBC requested Transco complete a habitat assessment of the Hensel Replacement and Hilltop Loop in Clinton County, and Compressor Station 620 in Schuylkill County. Transco completed Phase I habitat assessment surveys and Phases II presence/absence surveys between March 20 and May 10, 2019.

Potential habitat was identified in ten areas along the Hensel Replacement, and eight areas along the Hilltop Loop. No timber rattlesnake habitat was found at the Compressor Station 620 site. The location of the identified habitat is provided in the Timber Rattlesnake Phase I Habitat Assessment and Phase II Presence/Absence Denning Survey Report provided in Appendix 2-4. During Phase II presence/absence surveys, timber rattlesnakes were observed in six of the ten potential habitat areas along the Hensel Replacement and three of the eight potential habitat areas along the Hilltop Loop.

Three of the active habitat areas along the Hensel Replacement and one of the active habitat areas along the Hilltop Loop are within the proposed Project workspaces. The active habitat areas within Hensel Replacement workspaces are gestation habitat areas only; no confirmed denning habitat is present within the Project area. The single active habitat area within Hilltop Loop consists of four discrete denning locations, with one location also containing gestation habitat.

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

Table S2.D.1-1 outlines the total riverine resources to be impacted by the Project. All riverine resource impacts are located on the pipeline components of the Project. The individual gradient class, watershed size, and PA Riverine Condition Level 2 Rapid Assessment (L2RAP) score for each riverine resource crossed by the Project is provided. A detailed summary of results from the PA Riverine Conditional Level 2 Rapid Assessment is included within the Wetland and Watercourse Delineation Report in Appendix S2-1.

Table S2.D.1-1
Riverine Resource Classification

Facility	Milepost/Access Road	Watercourse ID	Stream Type[1]	Gradient Class[2]	Watershed Size[2]	PA Riverine L2 Score
Hensel Replacement	193.88	S1-T1-HR	E	3	1	0.68
Hensel Replacement	190.69	S1-T7-HR	P	3	1	0.76
Hensel Replacement	189.05	S12-T6-HR	P	3	2	0.79
Hensel Replacement	190.47	S7-T7-HR	P	2	2	0.80
Hensel Replacement	193.11	S2-T7a-HR	P	1	1	0.87
Hensel Replacement	193.1	S1-T5-HR	I	3	1	0.58
Hensel Replacement	190.36	S9-T6-HR	P	3	1	0.77
Hilltop Loop	184.97	S1-T4-HL	P	2	3	0.68
Hilltop Loop	AR-185.2	S8-T5-HL	E	3	1	0.83
Hilltop Loop	AR-185.7	S7-T5-HL	I	3	1	0.89
Hilltop Loop	AR-185.7	S7-T5-HL	I	3	1	0.88
Benton Loop	120.22	S1-T1	P	3	1	0.66
Benton Loop	119.63	S2-T2	P	3	1	0.76
Benton Loop	118.79	S2-T5	P	2	2	0.62
Benton Loop	118.84	S3-T5	I	3	1	0.62
Benton Loop	117.83	S2-T6	E	3	1	0.58
Benton Loop	119.17	S3-T3	P	3	1	0.83
Benton Loop	118.17	S6-T6	P	3	1	0.63
Benton Loop	118.07	S5-T6	E	3	1	0.41
1 – P = Perennial, I = Intermittent, E = Ephemeral						
2 – PNHP, 2018.						

S2.D.1(iv - v) Riverine Resource Assessment and Adjacent Riparian Property

The following contains information pertaining to the riverine resource conditions within the Project area as they relate to their inherent functions including, but not limited to, hydrologic, biogeochemical and habitat attributes as well as any applicable recreational uses.

The riverine impacts associated with the Project area is located either within a previously disturbed pipeline ROW or will expand upon the existing ROW that is located primarily within forested areas. Most streams within the Project area flow thru forested corridors, except for those portions crossing the existing ROW. The forested corridors provide habitat for the wildlife including foraging habitat and cover.

Most of the riverine resources within the Project area were previously disturbed when the existing pipelines were installed. Natural drainage patterns were evident during field surveys and prior disturbances related to past pipeline installation (if any) were restored to the natural drainage of the resources. Some drainage patterns showed signs of impact as a result of agricultural, all-terrain vehicles or other activities.

Groundwater discharges and natural recharge of surface and ground water resources is available throughout the Project components. In general, the Project is in rural areas with minimal impervious areas concentrating flows and preventing infiltration. Natural drainages allow for these resources to recharge and supply the groundwater and tributaries base flows throughout the year. The floodplains within the Project area function to attenuate storm flows, as limited development exists along most streams. Some private homes and recreational properties exist along Young Womans Creek, however, have limited impact on stormflows due to the dwellings being relatively sparsely spaced and having limited impervious areas.

Riverine resources and their riparian areas provide natural pollutant prevention within the Project area. The Project area is well vegetated throughout the length of the pipeline. Much of the Project area is existing pipeline ROW with adjacent forested or agricultural land with dirt and gravel roads. These roads can contribute turbidity to the local streams and watersheds during storm events. Otherwise the Project area in both the forested and agricultural settings are stable and have relatively limited existing pollution sources. Since most areas are well vegetated, it is expected the existing vegetation acts as a filter to some capacity, filtering and trapping pollutions such as sediment and excess nutrients. Flowing waterbodies in the Project area are generally stable, with some areas showing downcut or eroded banks. However, in general, sediment inputs from sources, such as eroding banks, are minimal within the Project area.

Onsite ephemeral, intermittent and perennial stream channels serve as breeding habitat for fish, insects, and amphibians which in turn serve to support food chain production. Riverine resources also provide habitat for amphibians and insects that spend all or some of their lifecycle in aquatic habitats. All of these species support the local food chain and often serve as a valuable food resource to both terrestrial and aquatic species. Waterbodies within the Project area contain cobble and woody debris that may provide resting habitat for aquatic organisms. Riffle-pool complexes in streams provide escape cover for aquatic species. Woody debris and undercut banks may also serve as escape cover from predation.

The majority of the Hensel Replacement and a small portion of the Hilltop Loop is located on Sproul State Forest. Private lands along the Project may allow for similar recreational opportunities as Sproul State Forest; however, such opportunities are limited to only those with permission to access these properties. Recreational uses associated with riverine resources include but are not limited to plant/wildlife observation, fishing and watersports.

The Project is located within the Little Muncy Creek, Buck Run, West Branch of Little Muncy Creek, Young Womans Creek, Skunk Hollow, Paddy Run, Hensel Fork and Drury Run watersheds which are considered wild trout streams by the PFBC. Young Womans Creek is also listed as trout stocked streams where the Hilltop Loop is proposed. Additionally, Young Womans Creek is classified as a navigable water by the PFBC. Watersports such as, canoeing and kayaking opportunities are available on this stream. These streams also provide recreational opportunities for fishing.

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. However, one Project component, Contractor Yard CY-003, associated with the Hensel Replacement, is in proximity to a reach of West Branch Susquehanna River, which is classified as impaired due to the presence of metals associated with acid mine drainage (PADEP 2019). West Branch Susquehanna River has an approved TMDL for metals and pH associated with acid mine drainage (PADEP 2001)

Properties upstream and downstream of the Project are generally rural forested and agricultural properties with some residential and recreational 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
Hensel Replacement							
	193.83	W1-T1-HR	EV	Depressional	PEM, PSS, PFO	Mixed Forb - Graminoid Wet Meadow, Highbush Blueberry - Meadow-sweet Wetland, Red Maple - Sedge Palustrine Woodland	0.81
	193.64	W3-T1-HR	Other	Slope	PEM, PFO	Mixed Forb - Graminoid Wet Meadow, Hemlock - Mixed Hardwood Palustrine Woodland	0.86
	193.07	W4-T5-HR	EV	Riverine	PEM, PSS, PFO, POW	Floodplain Meadow, Alder-Dogwood Floodplain Thicket, Sycamore - Mixed Hardwood Floodplain Forest	0.87
	192.91	W4-T5-HR	EV	Slope	PEM, PSS	Sedge - Mixed Forb Fen, Acidic Mixed Shrub - Sphagnum Wetland	0.89
	190.99	W1-T7-HR	Other	Riverine	PEM, PSS	Floodplain Meadow, Black Willow Floodplain Thicket	0.81
	190.66	W1-T7-HR	Other	Riverine	PEM, PSS, PFO	Floodplain Meadow, Black Willow Floodplain Thicket, Red Maple - Sedge Palustrine Woodland	0.90
	190.46	W8-T6-HR	EV	Riverine	PSS	Black Willow Floodplain Thicket	0.94
	189.99	W17-T7-HR	Other	Slope	PEM	Mixed Forb - Graminoid Wet Meadow	0.91
	AR-189.5	W3-T7a-HR	Other	Depressional	PEM	Sparsely Vegetated Vernal Pool	0.93
	AR-189.5	W4-T7a-HR	Other	Depressional	PEM	Sparsely Vegetated Vernal Pool	0.93

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
	AR-189.5	W5-T7a-HR	Other	Depressional	PFO	Red Maple - Sedge Palustrine Woodland	0.89
	AR-189.5	W6-T7a-HR	Other	Depressional	PFO	Red Maple - Sedge Palustrine Woodland	0.89
Hilltop Loop							
	183.55	W3-T7a-HL	Other	Slope	PEM	Mixed Forb - Graminoid Wet Meadow	0.78
	184.43	W1-T5-HL	EV	Depressional	PEM, PFO	Mixed Forb - Graminoid Wet Meadow, Red Maple - Sedge Palustrine Woodland	0.89
	184.93	W1-T4-HL	EV	Riverine	PEM, PFO	Mixed Forb - Graminoid Wet Meadow, Sycamore - Mixed Hardwood Floodplain Forest	0.83
	185.02	W2-T4-HL	EV	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.75
	185.04	W3-T2-HL	EV	Riverine	PEM	Mixed Forb - Graminoid Wet Meadow	0.75
	185.05	W5-T2-HL	EV	Slope	PFO	Red Maple - Black-gum Palustrine Forest	0.75
	185.88	W11-T5-HL	Other	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.87
Benton Loop							
	117.28	W14-T6	Other	Depressional	PEM	Bluejoint - Reed Canary - grass marsh	0.66
	117.29	W13-T6	Other	Depressional	PEM	Bluejoint - Reed Canary - grass marsh	0.66
	117.49	W1-T6	Other	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.81
	117.48	W2-T6	Other	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.81
	117.80	W4-T6	EV	Riverine	PEM	Mixed Forb - Graminoid Wet Meadow	0.85
	117.86	W6-T6	Other	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.90

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
	118.10	W8-T6	Other	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.89
	118.10	W9-T6	Other	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.89
	118.74	W16-T6	EV	Slope	PEM, PFO	Floodplain Meadow, Hemlock - Mixed Hardwood Palustrine Woodland	0.80
	118.83	W2-T5	EV	Riverine	PEM, PFO	Mixed Forb - Graminoid Wet Meadow, Hemlock - Palustrine Forest	0.80
	118.86	W4-T5	EV	Riverine	PEM, PFO	Floodplain Meadow, Hemlock - Mixed Hardwood Palustrine Woodland	0.80
	119.10	W2-T4	EV	Slope	PEM, PFO	Mixed Forb - Graminoid Wet Meadow, Hemlock - Mixed Hardwood Palustrine Woodland	0.83
	119.53	W1-T2	EV	Slope	PEM, PFO	Mixed Forb - Graminoid Wet Meadow, Red Maple - Mixed Shrub Palustrine Woodland	0.79
	120.22	W3-T1	EV	Riverine	PEM, PSS, PFO	Mixed Forb - Graminoid Wet Meadow, Alder - Dogwood Floodplain Thicket, Red Maple - Sedge Palustrine Woodland	0.75
Compressor Station 607							
	N/A	W2-T1	Other	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	Other	Slope	PEM	Mixed Forb - Graminoid Wet Meadow	0.68
	N/A	W3-T3	Other	Depressional	PEM	Mixed Forb - Graminoid Wet Meadow	0.79

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
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, POW or 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. In addition, the woody vegetation found within PFO and PSS wetlands provide food sources for terrestrial bird and mammal species. Additionally, the PFO and PSS resources result in detritus that aquatic species feed upon.

Vegetation within wetlands provides shade and limited resting opportunities for wildlife species such as small mammals, amphibians, and insects. Larger PEM, PSS, and PFO wetlands with a greater degree of vegetative heterogeneity may provide additional resting habitat and escape cover for wildlife species. Some wetlands in the Project area have sufficient vegetation to provide escape cover for small vertebrates and mammals.

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. Onsite wetlands may function to attenuate flood waters and provide flood control. Wetlands within the Project area also provide some flood flow storage potential and can serve to reduce the severity of flood peaks from their upstream watersheds.

The onsite wetlands that are more densely vegetated also aid in filtering water. Most of these wetlands have been previously disturbed during prior pipe installation 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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