PennEast Pipeline Company, LLC

PENNEAST PIPELINE PROJECT

L2 - ENVIRONMENTAL ASSESSMENT MODULE 2
RESOURCE IDENTIFICATION
CARBON COUNTY

DECEMBER 2018

Submitted by:
PennEast Pipeline Company, LLC

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TABLES

APPENDICES

ACRONYMS LIST

BO	Biological Opinion
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWF	Cold Water Fishes
dbh	diameter at breast height
EA	Environmental Assessment
EA Form	Environmental Assessment Form
EV	Exceptional Value
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
HDD	horizontal directional drill
HGM	hydrogeomorphic
HQ	High-Quality
JPA	Joint Permit Application
L2RAP	Level 2 Rapid Assessment Protocol
MF	Migratory Fishes
mi^2	square miles
MP	milepost
NCDWQ	North Carolina Division of Water Quality
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
PA	Pennsylvania
PADCNR	Pennsylvania Department of Conservation and Natural Resources
PADEP	Pennsylvania Department of Environmental Protection
PaGWIS	Pennsylvania Groundwater Information System
PEM	palustrine emergent
PennEast	PennEast Pipeline Company, LLC
PFBC	Pennsylvania Fish and Boat Commission
PFO	palustrine forested
PGC	Pennsylvania Game Commission
Plan	Upland Erosion Control, Revegetation, and Maintenance Plan
PNHP	Pennsylvania Natural Heritage Program
PNDI	Pennsylvania Natural Diversity Inventory
Procedures	Wetland and Waterbody Construction and Mitigation Procedures
Project	PennEast Pipeline Project
PSS	palustrine scrub-shrub
ROW	right-of-way
RQBTS	Recognized Qualified Bog Turtle Surveyor
SGL	State Game Lands
T&E	threatened and endangered
TGD	Technical Guidance Document
TSF	Trout Stocking Fishery
USACE	U.S. Army Corps of Engineers

USCA	U.S. Code Annotated
USFWS	U.S. Fish and Wildlife Service
WWF	Warmwater Fishes

Module S2: Resource Identification and Characterization

In accordance with the requirements contained within the Pennsylvania Department of Environmental Protection's (PADEP) Comprehensive Environmental Assessment of Proposed Project Impacts for Chapter 105 Water Obstruction and Encroachment Permit Applications Technical Guidance Document (TGD) (Document No. 310-2137-006) and the assessment criteria detailed in Module 2 of the Environmental Assessment (EA) Form (EA Form) Instructions (Document No. 3150-PM-BWEW0017, Revised 6/2017), PennEast Pipeline Company, LLC (PennEast) has provided a complete analysis and discussion of the aquatic habitat resources located within the right-of-way (ROW) workspace limits of the proposed PennEast Pipeline Project (Project) in Carbon County, Pennsylvania. This document follows the sequence of the requirements presented in the EA Form Instructions Module S2 Section.

S2.A Standard Resource Identification

S2.A.1 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 in Table CA-L2-1. Resumes are provided in Appendix CA-L-2A.

Table CA-L2-1
Resource Identification Information

Organization Name	Mailing Address	Staff	Email Address	Portions of Work Completed
AECOM Technical Services, Inc.	625West Ridge Pike Suite E100 Conshohocken, PA 19428	Sarah Binckley	sarah.binckley@aecom.com	Oversaw Aquatic Resource Identification and Permit Application (2015-2018)
AECOM Technical Services, Inc.	625West Ridge Pike Suite E100 Conshohocken, PA 19428	Bruce Bayne	bruce.bayne@aecom.com	Aquatic Resource Identification Technical Lead (2014-2018)
AECOM Technical Services, Inc	715 Washington Boulevard Williamsport, PA 17701	Shannon Haight	shannon.haight@aecom.com	Permit Application Technical Lead

Organization Name	Mailing Address	Staff	Email Address	Portions of Work Completed
AECOM Technical Services, Inc.	100 Sterling Parkway, Suite 205 Mechanicsburg, PA 17050	Will Anderson	william.anderson@aecom.com	Wetland and Watercourse Delineations, L2RAP[1] Field Work (2015-2018)
AECOM Technical Services, Inc.	625West Ridge Pike. Suite E100 Conshohocken, PA 19428	David Brightbill	david.brightbill@aecom.com	Wetland and Watercourse Delineations, L2RAP Field Work (2015-2018)
AECOM Technical Services, Inc.	625West Ridge Pike. Suite E100 Conshohocken, PA 19428	Carolyn Steinberg	carolyn.steinberg@aecom.com	Wetland and Watercourse Delineation and L2RAP data management (2014-2018)
AECOM Technical Services, Inc.	Foster Plaza 6, 681 Andersen Drive Suite 400 Pittsburgh, PA 15220	Mark Fox	mark.fox@aecom.com	L2RAP Desktop Analysis
AECOM Technical Services, Inc.	Foster Plaza 6, 681 Andersen Drive Suite 400 Pittsburgh, PA 15220	Colleen Ashbaugh	colleen.ashbaugh@aecom.com	Wetland and Watercourse Delineation Report and L2RAP data management (2017-2018)
AECOM Technical Services, Inc.	625West Ridge Pike. Suite E100 Conshohocken, PA 19428	Gavin McBrien	gavin.mcbrien@aecom.com	Wetland and Watercourse Delineations, L2RAP Field Work (2014-2017)

Organization Name	Mailing Address	Staff	Email Address	Portions of Work Completed
AECOM Technical Services, Inc.	Foster Plaza 6, 681 Andersen Drive Suite 400 Pittsburgh, PA 15220	Matt Kline	matthew.kline@aecom.com	Wetland and Watercourse Delineations, L2RAP Field Work (2015-2017)
AECOM Technical Services, Inc.	100 Sterling Parkway, Suite 205 Mechanicsburg, PA 17050	Bridger Thompson	bridger.thompson@aecom.com	Wetland and Watercourse Delineations, L2RAP Field Work (2015-2017)
AECOM Technical Services, Inc.	715 Washington Boulevard Williamsport, PA 17701	Mark Benfer	mark.benfer@aecom.com	Wetland and Watercourse Delineations, L2RAP Field Work (2017)

Notes:
[1] Level 2 Rapid Assessment Protocol (L2RAP) includes PA Riverine Condition, PA Wetland Condition, and PA Lacustrine Condition protocols.

S2.A.2 Wetland Delineation Report

A Wetland and Watercourse Delineation Report is provided in Appendix CA-L-2B.

S2.A.3 Watercourse Reports

A Wetland and Watercourse Delineation Report is provided in Appendix CA-L-2B.

S2.A.4 Location Map

A Project Location Map specific to Carbon County that identifies regulated waters of the Commonwealth, natural areas, wildlife sanctuaries, natural landmarks, political boundaries, publicly available service areas for public water supplies, and historic landmarks within 1 mile of the Project and, State Forests, State Parks, State Game Lands, and prime farmland within 100 feet of the Project is included in Appendix CA-L-2C. There are no National Parks, Forests, or Recreation Areas within 100 feet of the Project. As indicated in Table CA-L2-2 below, there are no National Wildlife Refuges, or Federal, State, Local, or Private Wildlife or Plant Sanctuaries, Public Water Supply sources, Natural Wild or Scenic Rivers, Commonwealth's Scenic Rivers, or Designated Federal Wilderness Areas within 100 feet of the Project in Carbon County.

S2.A.5 Areas of Special Interest

A portion of the Project in Carbon County crosses State Parks, State Forests, State Game Lands, and areas identified as prime farmland, as summarized in Table CA-L2-2. Where areas of special interest will be crossed, a description of these areas is provided below.

Table CA-L2-2
Areas of Special Interest Crossed by the Project in Carbon County

Area of Special Interest	Yes	No
National, State or Local Park, Forest or Recreation Areas	X	
National Natural Landmarks		X
National Wildlife Refuge, or Federal, State, Local, or Private Wildlife or Plant Sanctuaries		X
State Game Lands	X	
Areas Identified as Prime Farmland	X	
Source for a Public Water Supply		X
Natural Wild or Scenic River or the Commonwealth's Scenic Rivers System		X
Designated Federal Wilderness Areas		X

National, State or Local Park, Forest or Recreation Areas

Within Carbon County, the Project crosses Francis E. Walter Reservoir, Beltzville State Park, and Hickory Run State Park.

Francis E. Walter Reservoir

Federally managed properties crossed by the Project in Carbon County include the crossing of a reservoir and recreational area associated with the Francis E. Walter Reservoir between mileposts (MPs) 23.0 and 23.1 for an approximate crossing length of 0.1 miles where the Project intersects the Lehigh River. Within Luzerne County, approximately 0.7 acres of lands associated with the Francis E. Walter Reservoir will be affected by the construction of the Project and 0.3 acres will be located in the permanent ROW. The primary purpose of the Francis E. Walter Dam is flood control, and recreation is a secondary mission; whitewater and fishery releases are planned every year (U.S. Army Corps of Engineers [USACE], 2017a). All facilities are operated and maintained by the USACE (2017a). Public use areas include two boat launches, four picnic areas, one disc golf course, and many other improved and managed areas for public recreation. An extensive recreational and fisheries program is also in place at the Francis E. Walter Reservoir area. Recreation along the reservoir is typical of that which is available along any major waterway including fishing and boating. There are no existing roads leading to the area where the Project crosses the reservoir. The Lehigh River at this location is not used by beach goers, and there are no boat launches in the immediate vicinity of the proposed crossing. The crossing location was chosen such that it is situated farther than 2 miles from the dam itself, and away from recreational access points and facilities, such as boat launches.

Pursuant to Section 14 of the Rivers and Harbors Act and codified in U.S. Code Title 33 Section 408, PennEast has consulted with the USACE regarding the proposed modifications to the Francis E. Walter Reservoir and is seeking Section 408 approval. Consultation with the USACE regarding the Section 408 approval was initiated in October 2014. Coordination continued for several months, and included a pre-application meeting in 2015 and the submission of a Section 408 application and an Application for Transportation and Utility Systems and Facilities on Federal Land in February 2016. The USACE issued a public notice in April 2016 that informed the public of PennEast's application (USACE, 2016a). In April 2017, PennEast submitted an applicant-prepared EA for the Francis E. Walter Reservoir crossing, which the USACE published in June 2017 (USACE, 2017b). On November 27, 2018, the USACE issued its Section 408 approval and a Finding of No Significant Impact. Impacts associated with this resource are discussed in Module 3. Impacts associated with this resource are discussed in Module 3.

Beltzville State Park

Management of state parks in Pennsylvania is implemented by the Pennsylvania Department of Conservation and Natural Resources (PADCNR). Beltzville State Park is a 3,002-acre park located at the foothills of the Pocono Mountains, and is a cooperative effort between the USACE, the PADCNR, and the Pennsylvania Game Commission (PGC). The USACE operates and maintains the Beltzville Dam while recreation is managed by PADCNR under a lease agreement with the Pennsylvania Bureau of State Parks. The park is situated around the 949-acre Beltzville Lake and hosts 15 miles of hiking trails, 2.5 miles of mountain biking trails, and is open to a range of recreational activities including swimming,

boating, fishing, hunting, cross country-skiing, and water-skiing. Beltzville State Park and portions of Beltzville Lake will be crossed by the Project between MPs 43.1R3 and 44.1R3 for an approximate crossing length of 1.1 miles in Carbon County, Pennsylvania. Approximately 3.1 acres of lands associated with Beltzville State Park will be affected during the construction of the Project and 6.4 will be located in the permanent ROW.

PennEast initiated consultation with PADCNR in November 2014 and submitted a formal request for ROW on December 9, 2014. An official Pre-Survey Meeting was held on March 18, 2015. State Forest Environmental Review applications were submitted on March 4, 2016. PennEast has continued to coordinate with PADCNR since the application submittals, responding to PADCNR requests to avoid, minimize, and mitigate impacts to State Parks and State Forests. PennEast anticipates that a Post-Survey Meeting will be held in February 2019 to resolve any outstanding issues regarding the request for ROW.

This crossing also involves USACE approval of an easement allowing construction, operation and maintenance of the Project on Federally-owned, USACE-administered land within and surrounding Beltzville Lake. Therefore, the crossing of Beltzville Lake required a Section 408 approval and followed the same consultation and timeframe submittals as described above for the Francis E. Walter crossing. The USACE issued a public notice in April 2016 that informed the public of PennEast's application (USACE, 2016b). In April 2017, PennEast submitted an applicant-prepared EA for the Beltzville Lake crossing, which the USACE published in June 2017 (USACE, 2017b. PennEast has continued to address USACE technical comments on the application and public comments on the EA through July 2018.

Impacts associated with this resource are discussed in Module 3.

Hickory Run State Park

Management of state parks in Pennsylvania is implemented by the PADCNR. Hickory Run State Park is a 15,990-acre park with over 40 miles of hiking trails, three state park natural areas, the Boulder Field National Natural Landmark, and numerous trout watercourses (PADCNR, 2018a). The park is host to a large picnic area and campground. Recreational activities within the park include hiking, swimming, fishing, hunting, disc golf, orienteering, cross-country skiing, snowmobiling, and ice skating. The PennEast pipeline crosses Hickory Run State Park approximately from MP 29.3R2 to 30.0R2, from MP 30.5R2 to 31.5R2, from MP 32.6R3 to 34.6.R2, and at 34.8R3 for an approximate crossing length of 3.5 miles. Approximately 36.2 acres of lands associated with Hickory Run State Park will be affected by the construction of the Project and 12.6 acres will be located in the permanent ROW. The proposed route was sited to further minimize impacts by co-locating PennEast's proposed ROW with an existing Buckeye Pipeline ROW through this State Park.

As described above, PennEast submitted a formal request for ROW on December 9, 2014. Applications were submitted in March 2016, and PennEast has continued to coordinate with PADCNR to avoid, minimize, and mitigate impacts to state-owned and state-managed properties.

Impacts associated with this resource are discussed in Module 3.

Weiser State Forest

State forests in Pennsylvania are managed by the Bureau of Forestry, which is a subdivision of PADCNR. Weiser State Forest is comprised of 16 tracts in Dauphin, Carbon, Columbia, Lebanon, Montour, Northumberland, and Schuylkill counties which total almost 30,000 acres (PADCNR, 2018b). PennEast crosses a tract of Weiser State Forest at MP 36.5R3 to 37.1R3 for an approximate crossing length of 0.6 miles. Approximately 6.8 acres of lands associated with Weiser State Forest will be affected by the construction of the Project and 2.3 acres will be located in the permanent ROW. The proposed route was sited to further minimize impacts by co-locating PennEast's proposed ROW with an existing Buckeye Pipeline ROW through this State Park.

As described above, PennEast submitted a formal request for ROW on December 9, 2014. Applications were submitted in March 2016, and PennEast has continued to coordinate with PADCNR to avoid, minimize, and mitigate impacts to state-owned and state-managed properties.

State Game Lands

Pennsylvania's State Game Lands (SGL) are managed by the PGC. Within Carbon County, the Project crosses SGL 40, SGL 129, and SGL 168. SGL 40 consists of 6,202 acres in Carbon County. It will be crossed by the Project between MP 25.0 to 25.8 for a total crossing length of 0.9 miles. Approximately 24.4 acres of lands associated with SGL 40 will be affected by the construction of the Project and 3.1 acres will be located in the permanent ROW. SGL 129 consists of 3,702 acres located in Carbon and Monroe counties. It will be crossed by the Project between MP 30.0R2 and 30.5R2 for a crossing length of 0.5 miles. Approximately 7.3 acres of lands associated with SGL 129 will be affected by the construction of the Project and 1.9 acres will be located in the permanent ROW. SGL 168 consists of 7,320 acers within Carbon, Monroe, and Northampton counties. The PennEast Mainline will be constructed within this SGL in Monroe and Northampton counties. A portion of Access Road AR-048CN, an existing access road within the SGL, will be temporarily used during Project construction. Use of this access road will result in approximately 0.6 acres of temporary impacts to SGL 168 within Carbon County.

Impacts associated with this resource are discussed in Module 3. Consultation between PennEast and representatives from PGC began in September 2015, and ROW applications were submitted in 2017. The PGC issued license agreements for the Project on December 5, 2018.

Areas Identified as Prime Farmland

Based on soil units, 113.1 acres of area classified as prime farmland or farmland of statewide importance is located within the construction workspace in Carbon County. This acreage includes 69.9 acres in the temporary ROW and 43.2 acres in the permanent ROW. The prime farmland and farmland of statewide importance are listed by MP, soil map unit, and classification in Appendix CA-L-2C.

Source for a Public Water Supply

PennEast reviewed the PADCNR Pennsylvania Groundwater Information System (PaGWIS) and consulted with public water suppliers to identify groundwater wells within 500 feet of the Project workspace and surface water intakes one mile upstream or 10 miles downstream of Project workspace. Within Carbon County, PennEast consulted with Blue Ridge Real Estate, Lehighton Water Authority, and Palmerton Water Authority. Consultation letters were mailed on April 23, 2018, to which all three responded (Appendix CA-L-2H). Blue Ridge Real Estate does not have groundwater wells within 500 feet of the Project's workspace, and Palmerton Water Authority confirmed it does not have potable water intakes near the Project. Lehighton Water Authority has a surface water intake that is approximately 2 miles downstream of the Project. PennEast will continue to coordinate with the Lehighton Water Authority regarding the notification process if an unanticipated pollution event occurs. PennEast will provide the PADEP with any updates to public water supply consultations as they are received.

PennEast land agents also contacted landowners within 150 feet of Project workspace [500 feet in karst areas and near proposed horizontal directional drill HDD locations)] to determine the location of wells near the Project, some of which could service multiple households and could be considered public water supplies. In accordance with its Well Monitoring Plan and Federal Energy Regulatory Commission (FERC) Certificate conditions (FERC, 2018), PennEast will monitor all wells within 150 feet of the Project workspace (500 feet in karst areas and near proposed HDD locations). The monitoring will require the approval of the landowner and will include both public and private water supplies. In Carbon County, 44 wells have been identified within the well monitoring buffer.

S2.B Aquatic Resource Identification

Aquatic habitats identified in the general Project area include watercourses (i.e., lakes, ponds, reservoirs, ephemeral, intermittent and perennial watercourses) and wetlands. Watercourses and wetlands within Carbon County were field delineated by AECOM in accordance with USACE requirements between 2014 and 2018. The identification of regulated wetland and watercourse boundaries occurred within a 400-foot-wide survey corridor centered over the proposed pipeline (i.e., 200-feet on either side of the pipe centerline). Other areas in the survey scope included aboveground facilities, pipeyards, construction staging areas, and access road areas required to facilitate Project construction and operation.

Results of the field surveys determined construction of the Project in Carbon County would require the crossing of 61watercourses and 55 wetlands. Tables CA-L2-3 and CA-L2-4 below list the unique resource identifier, location, type, size, state designation, and fisheries classifications (where applicable) for watercourses and wetlands, respectively. Proposed impacts are presented in Module 3.

Watercourses

Watercourse flow type classifications for surface waters located within the survey corridor were assigned in accordance with the criteria found in the Pennsylvania Code 025 §93, as well as by determination of watercourse flow using geomorphic, hydrological and biological indicators, utilizing the North Carolina Division of Water Quality (NCDWQ), Identification Methods for the Origins of Intermittent and Perennial Streams (NCDWQ, 2005 per PADEP, 2012). Of the 80 watercourses surveyed within the 400-

foot-wide survey corridor in Carbon County, 12 were classified as ephemeral, 36 were classified as intermittent and 32 were classified as perennial. Only 61 of the surveyed watercourses will be impacted by the Project. A summary of the total top-of-bank crossing widths for all watercourses crossed in Carbon County consists of the following:

- 49 watercourses have top-of-bank crossing width equal to or less than 10 feet;
- 10 watercourses have top-of-bank crossing width between 11- and 100 feet; and
- 2 watercourses have top-of-bank crossing width greater than 100 feet.

Major watercourse crossings (i.e., total crossing widths that are 100-feet or larger) within Carbon County consist of the following:

- Lehigh River [Watercourse ID 052115_JC_1001_P_MA (crossing is located in both Luzerne and Carbon counties – impacts are accounted for in the Luzerne County Joint Permit Application [JPA])]
- Wild Creek/Beltzville Lake [Watercourse ID 052215_JC_1001_LAKE_MA(1)]
- Pohopoco Creek/Beltzville Lake [Watercourse ID 052215_JC_1001_LAKE_MA(2)]

Designated/Existing Uses and High Quality/Exceptional Value Waters

The Commonwealth of Pennsylvania has established Water Quality Standards that classify surface waters in Pennsylvania according to their use. These standards were established to implement Pennsylvania's Clean Streams Law that protects existing and designated surface water uses from degradation and negative change to the water's use. Uses include those associated with aquatic life, water supply, recreation and fish consumption, special protection, and navigation. The water use classification system and criteria are established for Pennsylvania Code Title 25, Chapter 93 and include the following designations related to fisheries:

- Warmwater Fishes (WWF) - Maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat;
- Cold Water Fishes (CWF) - Maintenance and/or propagation of fish species including the family Salmonidae and additional flora and fauna which are indigenous to cold water habitat;
- Migratory Fishes (MF) - Passage, maintenance, and propagation of anadromous and catadromous fishes and other fishes that move to or from flowing waters to complete their life cycle in other waters; and
- Trout Stocking Fishery (TSF) Maintenance of stocked trout from February 15 to July 31, and maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.

In addition, watercourses may be classified as special protection waters, including Exceptional Value (EV) and High-Quality (HQ) based on a variety of criteria. HQ waters are those surface waters with water quality that exceed levels necessary to support propagation of fish, shellfish, and wildlife, and

recreation in and on the water by satisfying Pennsylvania Code 025 §93.4b(a). EV waters include high quality surface waters that satisfy Pennsylvania Code 025 §93.4b(b). The water quality of all HQ and EV watercourses must be maintained and protected in accordance with antidegradation requirements (Pennsylvania Code 025 §93.4a). The Pennsylvania Fish and Boat Commission (PFBC) further defines watercourses based upon their status with regard to their ability to support the propagation of trout, wild or otherwise. Stocked Trout Waters include watercourses that have significant portions that are open to public fishing and are stocked with trout by the PFBC. Wild Trout Waters are sections of watercourses that support naturally reproduction populations of trout. Class A Wild Trout Streams are wild trout watercourses that have a population that is of sufficient size and abundance to support a long-term sport fishery. Table CA-L2-3 below provides an overview of the fishery resource classifications based on review of appropriate drainage lists found in Pennsylvania Code, Title 25, Chapter 93, §93.9 and the trout water classification lists published by the PFBC.

Floodways

As defined by the PADEP under Pennsylvania Code 025 §105.1, the floodway of a watercourse is identified as the channel of the watercourse and portions of the adjoining floodplains which are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by the Federal Emergency Management Agency (FEMA). In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed, absent evidence to the contrary, that the floodway extends 50-feet from the top of the bank of the watercourse.

PennEast assessed the Flood Insurance Rate Maps issued by FEMA to identify mapped Regulatory Floodways. Where no mapped floodway exists, PennEast assumed that a 50-foot wide buffer on each watercourse, measured landward from the top of bank of both the left and the right bank of the watercourse, represents the floodway. Table CA-L2-3 provides information about the floodway size for each floodway within the study corridor that will be impacted by the Project. Figures contained within JPA Section H-2 show the FEMA 100-year floodways and the presumed 50-foot PADEP floodways within Carbon County. Impacts are presented in Module 3.

Table CA-L2-3
Size and Designations of Impacted Watercourses in Carbon County[1]

Milepost[2]	Watercourse ID[3,4]	Watercourse Name	Resource Type[5]	Watercourse Type[6]	Delineated Channel Length within the Study Corridor (feet)	Average Delineated Width (feet)	Floodway acreage within the Study Corridor (acre)	PFBC Wild Trout Water [7]	PFBC Trout Stocked Water[8]	Chapter 93 Existing or Designated Use[9]
PennEast Mainline Pipeline										
24.5	110415_GM_1001_I_MI	UNT to Lime Hollow	Watercourse floodway	Intermittent	-	-	0.40	III	-	HQ-CWF, MF
26.5	102114_JC_1003_E_MI	UNT to Black Creek	Watercourse floodway	Ephemeral	-	-	0.51	III	-	HQ-CWF, MF
26.6	102114_JC_1001_P_MI	UNT to Black Creek	Watercourse-channel and watercourse floodway	Perennial	1608	7	2.09	III	-	HQ-CWF, MF
30.4R2	042415_JC_1006_E_MI - 1	UNT to Hawk Run	Watercourse-channel and watercourse floodway	Ephemeral	818	3	1.98	I, III	-	HQ-CWF, MF
30.5R2	042415_JC_1006_E_MI - 2	UNT to Hawk Run	Watercourse-channel and watercourse floodway	Ephemeral	818	3	1.98	I, III	-	HQ-CWF, MF
31.2R2	042415_JC_1003_I_MI	UNT to Laurel Run	Watercourse floodway	Intermittent	-	-	0.30	III	-	HQ-CWF, MF
31.2R2	042415_JC_1004_P_MI	UNT to Laurel Run	Watercourse-channel and watercourse floodway	Perennial	258	10	0.24	III	-	HQ-CWF, MF
31.2R2	042415_JC_1002_P_IN - 1	UNT to Laurel Run	Watercourse-channel and watercourse floodway	Perennial	783	15	0.22	III	-	HQ-CWF, MF
31.2R2	042415_JC_1002_P_IN - 2	UNT to Laurel Run	Watercourse-channel and watercourse floodway	Perennial	783	15	0.22	III	-	HQ-CWF, MF
31.2R2	042415_JC_1005_D_MI	UNT to Laurel Run	Watercourse-channel and watercourse floodway	Ephemeral	585	4	0.88	III	-	HQ-CWF, MF
32.7R3	110316_GM_1001_I_MI	UNT to Mud Run	Watercourse floodway	Intermittent	-	-	0.40	III	-	HQ-CWF, MF
32.9R3	110316_GM_1004_I_MI	UNT to Mud Run	Watercourse-channel and watercourse floodway	Intermittent	443	3	1.26	III	-	HQ-CWF, MF
32.8R3	110316_GM_1003_I_MI	UNT to Mud Run	Watercourse-channel and watercourse floodway	Intermittent	268	4	0.88	III	-	HQ-CWF, MF
33.2R3	042115_JC_1001_P_IN	Mud Run	Watercourse-channel and watercourse floodway	Perennial	443	45	0.61	III	TS	HQ-CWF, MF
33.2R3	042115_JC_1002_P_MI	UNT to Mud Run	Watercourse-channel and watercourse floodway	Perennial	454	10	0.52	III	-	HQ-CWF, MF
33.4R3	042115_JC_1004_I_MI	UNT to Mud Run	Watercourse-channel and watercourse floodway	Intermittent	703	10	1.73	III	-	HQ-CWF, MF
33.4R3	042115_JC_1003_E_MI	UNT to Mud Run	Watercourse floodway	Ephemeral	-	-	0.00	III	TSF	HQ-CWF, MF
33.5R3	042115_JC_1005_E_MI	UNT to Mud Run	Watercourse-channel and watercourse floodway	Ephemeral	111	3	0.22	III	-	HQ-CWF, MF

Milepost[2]	Watercourse ID[3,4]	Watercourse Name	Resource Type[5]	Watercourse Type[6]	Delineated Channel Length within the Study Corridor (feet)	Average Delineated Width (feet)	Floodway acreage within the Study Corridor (acre)	PFBC Wild Trout Water [7]	PFBC Trout Stocked Water[8]	Chapter 93 Existing or Designated Use[9]
34.7R2	042315_JC_1001_I_MI	UNT to Stony Creek	Watercourse-channel and watercourse floodway	Intermittent	560	8	-	III	-	EV, MF
33.7R3	042115_JC_1006_I_MI	UNT to Mud Run	Watercourse floodway	Intermittent	-	-	0.88	III	TSF	HQ-CWF, MF
34.7R2	042315_JC_1002_P_MI	UNT to Stony Creek	Watercourse-channel and watercourse floodway	Perennial	645	5	1.19	III	-	EV, MF
34.8R3	042315_JC_1003_P_IN	Stony Creek	Watercourse-channel and watercourse floodway	Perennial	368	15	0.70	III	-	EV, MF
34.8R3	042315_JC_1003_I_IN	UNT to Stony Creek	Watercourse-channel and watercourse floodway	Intermittent	1667	15	2.72	III	-	EV, MF
36.1	060117_MB_1001_P_MI	Yellow Run	Watercourse-channel and watercourse floodway	Perennial	679	18	1.36	III	-	EV, MF
36.5R3	050615_JC_1002_I_MI	UNT to Yellow Run	Watercourse floodway	Intermittent	-	-	0.51	III	-	EV, MF
36.6R3	010816_DB_1001_I_MI	UNT to Yellow Run	Watercourse floodway	Intermittent	-	-	2.41	III	-	EV, MF
37.5	061615_DB_1001_I_MI	UNT to Wild Creek	Watercourse-channel and watercourse floodway	Intermittent	429	7	1.00	I, III	-	EV, MF
38.3	061615_DB_1002_P_IN	Wild Creek	Watercourse-channel and watercourse floodway	Perennial	728	10	1.09	I, III	-	EV, MF
41	040517_BT_1001_E_MI	UNT to White Oak Run	Watercourse-channel and watercourse floodway	Ephemeral	250	1	0.59	III	-	EV, MF
41.1	091516_GM_1002_E_MI	UNT to White Oak Run	Watercourse-channel and watercourse floodway	Ephemeral	419	3	1.07	III	-	EV, MF
41.2	012717_GM_1002_P_MI	UNT to White Oak Run	Watercourse-channel and watercourse floodway	Perennial	658	4	1.21	III	-	EV, MF
41.2	012717_GM_1003_P_MI	UNT to White Oak Run	Watercourse-channel and watercourse floodway	Perennial	529	4	1.09	III	-	EV, MF
41.3	020117_GM_1002_P_MI	UNT to White Oak Run	Watercourse-channel and watercourse floodway	Perennial	623	4	1.13	III	-	EV, MF
41.6	020117_GM_1001_P_MI	White Oak Run	Watercourse-channel and watercourse floodway	Perennial	475	10	0.96	III	-	EV, MF
43.5R3	052215_JC_1001_LAKE_MA (1)	Wild Creek/Beltzville Lake	Lacustrine	Perennial	894	160	0.85	III	-	EV, MF
44R3	052215_JC_1001_LAKE_MA (2)	Pohopoco Creek/Beltzville Lake	Lacustrine	Perennial	632	325	1.13	III	-	CWF, MF
44.2R3	061715_DB_1001_I_MI	UNT to Pohopoco Creek	Watercourse-channel and watercourse floodway	Intermittent	1135	5	1.07	III	-	CWF, MF
44.3R3	122215_DB_1001_P_MI	UNT to Pohopoco Creek	Watercourse-channel and watercourse floodway	Perennial	629	6	1.64	III	-	CWF, MF

Milepost[2]	Watercourse ID[3,4]	Watercourse Name	Resource Type[5]	Watercourse Type[6]	Delineated Channel Length within the Study Corridor (feet)	Average Delineated Width (feet)	Floodway acreage within the Study Corridor (acre)	PFBC Wild Trout Water [7]	PFBC Trout Stocked Water[8]	Chapter 93 Existing or Designated Use[9]
44.8R2	041018_WA_1000_P_MI	UNT to Hunter Creek	Watercourse-channel and watercourse floodway	Perennial	695	6	0.39	I, III	-	HQ-CWF, MF
45R2	051115_JC_1002_P_MI	UNT to Hunter Creek	Watercourse-channel and watercourse floodway	Perennial	431	2	0.87	I, III	-	HQ-CWF, MF
45.6	051115_JC_1001_P_MI	UNT to Hunter Creek	Watercourse-channel and watercourse floodway	Perennial	499	2	1.13	I, III	-	HQ-CWF, MF
46.1	041018_WA_1002_I_MI	UNT to Hunter Creek	Watercourse floodway	Intermittent	-	-	0.45	I, III	-	HQ-CWF, MF
46.3	041018_WA_1003_I_MI	UNT to Hunter Creek	Watercourse-channel and watercourse floodway	Intermittent	261	3	0.64	I, III	-	HQ-CWF, MF
48.1	090914_WA_1000_P_IM	Buckwha Creek	Watercourse-channel and watercourse floodway	Perennial	466	50	1.05	III	TS	CWF, MF
49.3R3	041217_GM_1001_P_IN	Aquashicola Creek	Watercourse-channel and watercourse floodway	Perennial	250	35	1.52	III	TS	HQ-CWF, MF
50.6R3	072618_WA_1008_I_MI	UNT to Aquashicola Creek	Watercourse floodway	Intermittent	-	-	0.26	III	-	HQ-CWF, MF
50.6R3	072618_WA_1010_I_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Intermittent	56	2	0.07	III	-	HQ-CWF, MF
50.6R3	072618_WA_1009_I_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Intermittent	217	3	0.35	III	-	HQ-CWF, MF
50.6R3	072618_WA_1007_I_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Intermittent	304	1	0.76	III	-	HQ-CWF, MF
50.7R3	072618_WA_1005_I_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Intermittent	149	2	0.21	III	-	HQ-CWF, MF
50.7R3	072618_WA_1004_I_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Intermittent	106	2	0.11	III	-	HQ-CWF, MF
50.7R3	072618_WA_1003_I_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Intermittent	125	2	0.17	III	-	HQ-CWF, MF
50.7R3	072618_WA_1001_P_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Perennial	250	6	0.64	III	-	HQ-CWF, MF
50.7R3	072618_WA_1002_I_MI	UNT to Aquashicola Creek	Watercourse floodway	Intermittent	-	-	0.10	III	-	HQ-CWF, MF
50.7R3	072618_WA_1006_I_MI	UNT to Aquashicola Creek	Watercourse floodway	Intermittent	-	-	0.13	III	-	HQ-CWF, MF
Blue Mountain Lateral										
0.5R3	041017_GM_1001_P_IN	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Perennial	408	15	0.87	III	-	HQ-CWF, MF
0.5R3	041017_GM_1001_P_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Perennial	111	4	-	III	-	HQ-CWF, MF

Milepost[2]	Watercourse ID[3,4]	Watercourse Name	Resource Type[5]	Watercourse Type[6]	Delineated Channel Length within the Study Corridor (feet)	Average Delineated Width (feet)	Floodway acreage within the Study Corridor (acre)	PFBC Wild Trout Water[7]	PFBC Trout Stocked Water[8]	Chapter 93 Existing or Designated Use[9]
0.51R3	041117_GM_1002_E_MI	UNT to Aquashicola Creek	Watercourse-channel and watercourse floodway	Ephemeral	112	4	0.26	III	-	HQ-CWF, MF
Kidder Compressor Station										
26.6	082515_BT_1001_P_IM	UNT to Black Creek	Watercourse-channel and watercourse floodway	Perennial	1705	12	0.00	III	-	HQ-CWF, MF
Access Roads										
24.4	063017_GM_1001_I_MI	Lime Hollow	Watercourse-channel and watercourse floodway	Intermittent	48	1.5	0.12	III	-	HQ-CWF, MF
25.1	012617_GM_1002_P_MI	UNT to Black Creek	Watercourse-channel and watercourse floodway	Perennial	120	8	0.40	III	-	HQ-CWF, MF

Notes:

1. Source: PennDOT Pennsylvania county boundaries, dated 7/2018. Available at www.pasda.psu.edu.
2. All route deviations implemented after the FERC Certificate Application are denoted with an "R" and indicate a MP equation. MPs with an "R1" indicate route deviations implemented and provided to FERC prior to the issuance of the DEIS. MPs with an "R2" indicate route deviations implemented as part of the September 2016 Route Update. MPs with an "R3 indicate route deviations implemented post-FERC Certificate issuance. All MPs without an "R" indicate that the route has not changed since the Certificate Application.
3. In instances where a watercourse is crossed by the proposed pipeline or workspace multiple times, crossing numbers (e.g. "-1", "-2") have been added to the Watercourse ID.
4. Watercourse ID: P = perennial, I = intermittent, E = ephemeral, MA = major, IN = intermediate, MI = minor, C = canal, D = ditch
5. Resource type is defined as watercourse channel (riverine) or watercourse floodway consistent with the classification presented in EA Instructions Section B.2.
6. Ditches identified within the Project area were included as ephemeral waterbody crossings. Canals and lakes identified with the Project area were included as perennial waterbody crossings.
7. Sources: PFBC Stream Sections that Support Wild Trout Production, dated 8/2018 and PFBC Class A Wild Trout Streams, dated 8/2018. Available at www.pasda.psu.edu. I = Approved Trout Water, II = Wilderness Trout Stream, III = Naturally Reproducing Trout Stream.
8. Sources: PASDA Stocked Trout Waters (Flowing Waters), dated 2/2018 and PASDA Trout Stocked Streams, dated 2018. Available at www.pasda.psu.edu.
9. Sources: PADEP Streams Chapter 93 Existing Use, dated 7/2017 and PADEP Streams Chapter 93 Designated Use, dated 2/2017. If a stream has an existing use, the designated use has been replaced with that value. Available at www.pasda.psu.edu.

Wetlands

As defined under Section 404 of the Clean Water Act (CWA; 33 Code of Federal Regulations [CFR] 328), wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of wetland vegetation adapted for life in saturated soil conditions. PennEast identified, located, classified and delineated wetland resources within and adjacent to the Project area through field surveys conducted from 2014 to 2017. Jurisdictional wetlands crossed by the Project in Pennsylvania were field delineated in accordance with the USACE Wetlands Delineation Manual (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (USACE, 2011; 2012a, b).

The United States Fish and Wildlife Service (USFWS) wetland classification system described by Cowardin, et al. (1979) was used to classify the wetlands that would be affected by the Project. The wetlands in the Project area were identified as palustrine forested (PFO), palustrine scrub-shrub (PSS), palustrine emergent (PEM), or a combination of these three cover types. Construction of the proposed Project in Carbon County will result in 55 wetlands crossings.

Exceptional Value Wetlands

The State of Pennsylvania has two major classifications of wetlands – Exceptional Value (EV) and Other. The designation of EV wetlands is based on specific characteristics or uses. EV Wetlands are a category of wetlands that deserve special protection. In accordance with Pennsylvania Code 025 §105.17, EV wetlands are to exhibit one or more of the following five characteristics detailed in Sections 105.17(1)(i) through 105.17(1)(v):

(i) Wetlands which serve as habitat for fauna or flora listed as ‘‘threatened’’ or ‘‘endangered’’ under the Endangered Species Act of 1973 (7 United States Code Annotated [USCA] § 136; 16 USCA § § 4601-9, 460k-1, 668dd, 715i, 715a, 1362, 1371, 1372, 1402 and 1531—1543), the Wild Resource Conservation Act (32 P. S. § § 5301—5314), 30 Pa.C.S.(relating to the Fish and Boat Code) or 34 Pa.C.S. (relating to the Game and Wildlife Code).

(ii) Wetlands that are hydrologically connected to or located within 1/2-mile of wetlands identified under subparagraph (i) and that maintain the habitat of the threatened or endangered species within the wetland identified under subparagraph (i).

(iii) Wetlands that are located in or along the floodplain of the reach of a wild trout stream or waters listed as exceptional value under Chapter 93 (relating to water quality standards) and the floodplain of streams tributary thereto, or wetlands within the corridor of a watercourse or body of water that has been designated as a National wild or scenic river in accordance with the Wild and Scenic Rivers Act of 1968 (16 USCA § § 1271—1287) or designated as wild or scenic under the Pennsylvania Scenic Rivers Act (32 P. S.§ § 820.21—820.29).

(iv) Wetlands located along an existing public or private drinking water supply, including both surface water and groundwater sources, that maintain the quality or quantity of the drinking water supply.

(v) Wetlands located in areas designated by the Department as ‘‘natural’’ or ‘‘wild’’ areas within State Forest or Park lands, wetlands located in areas designated as Federal wilderness areas under the Wilderness Act (16 USCA § § 1131—1136) or the Federal Eastern Wilderness Act of 1975 (16 USCA § 1132) or wetlands located in areas designated as National natural landmarks by the Secretary of the Interior under the Historic Sites Act of 1935 (16 USCA § § 461—467).

Using the definitions above, PennEast evaluated the classification of each wetland that was delineated within the 400-foot-wide survey corridor.

(i) PennEast consulted with agencies that regulate threatened and endangered (T&E) species. These agencies requested targeted surveys for several species that utilize wetlands as habitat, including: bog turtle (*Glyptemys muhlenbergiii,* federal endangered), eastern redbelly turtle (*Pseudemys rubriventris*, state threatened), northeastern bulrush *(Scirpus ancistrochaetus,* federal endangered), northern cricket frog (*Acris crepitans,* state endangered), Collin’s sedge (*Carex collinsii,* state endangered*),* bog sedge (*Carex paupercula*, state threatened), variable sedge (*Carex polymorpha,* state endangered), sweetgale (*Myrica gale*, state threatened), white-fringed orchid (*Platanthera blephariglottis,* proposed state endangered and sensitive), screw-stem (*Bartonia paniculata*,state rare), rough-leaved aster (*Eurybia radula*, proposed state threatened), and creeping snowberry (*Gaultheria hispidula,* state rare). Within Carbon County, these survey requests included all of the previously listed species except eastern redbelly turtle. Some of the target species were observed in Carbon County wetlands; therefore, several EV wetlands in Carbon County met this parameter as denoted by “(i)” in Table CA-L2-4 below.

(ii) In consultation with federal and state agencies that regulate T&E species and through T&E species surveys, several wetlands that are hydrologically connected to and maintaining the habitat of T&E species were identified within Carbon County. Therefore, several EV wetlands in Carbon County met this parameter as denoted by “(ii)” in Table CA-L2-4 below.

(iii) The Project crosses multiple wild trout streams and tributaries thereto. The Project also crosses a few EV watercourses and their tributaries. PennEast evaluated each delineated wetland to determine if it was located within the floodplain of a wild trout stream or EV stream. In most instances, wetlands within a wild trout or EV watershed were categorized as EV. However, in some instances in these watersheds, no watercourses were located near a wetland, so it was classified as “other”. Wetlands that were not in wild trout or EV watersheds were also classified as “other” wetlands. Therefore, several EV wetlands in Carbon County met this parameter as denoted by “(iii)” in Table CA-L2-4 below.

(iv) As discussed in Section S2.A.5, PennEast used desktop analysis, consulted with public water suppliers, and contacted landowners to determine the locations of public or private drinking water supplies. Private wells were identified near the Project workspace in Carbon County, but none were located within 50 feet of a wetland. PennEast has concluded that no wetlands in Carbon

County are located along the water supply that would maintain the quality or quantity of the drinking water supply. Therefore, no EV wetlands in Carbon County met this parameter.

(v) The Project does not cross and wild or scenic rivers, nor is the Project located in any "natural" or "wild areas" within state forests or park lands, areas designated as federal wilderness areas, or areas designated as National Natural Landmarks. Therefore, no EV wetlands in Carbon County met this parameter.

Table CA-L2-4 below provides an overview of the wetland delineated size and Pennsylvania Code, Title 25, Chapter 025 §105 wetland classification.

Table CA-L2-4
Size and Classifications of Impacted Wetlands in Carbon County[1]

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]
PennEast Mainline Pipeline			
24.2	110614_JC_004_PFO - 1	2.25	Other
24.3	110614_JC_004_PFO - 2	2.25	Other
24.5	110614_JC_002B_PFO	0.03	Other
26.4	102114_JC_001B_PFO	0.05	Exceptional (i, iii)
26.7	102114_JC_001A_PSS - 1	0.62	Exceptional (i, iii)
26.9R2	102114_JC_001A_PSS - 3	0.62	Exceptional (i, iii)
26.4	102114_JC_001_PEM - 1	2.86	Exceptional (i, iii)
26.5	102114_JC_001_PEM - 2	2.86	Exceptional (i, iii)
26.7	102114_JC_001_PEM - 3	2.86	Exceptional (i, iii)
27R2	102314_JC_004_PEM	1.68	Exceptional (ii, iii)
27.1R2	102314_JC_002_PFO - 1	0.62	Exceptional (i, iii)
27.1R2	102314_JC_002_PFO - 2	0.62	Exceptional (i, iii)
27.1R2	102314_JC_002_PSS	19.29	Exceptional (i, iii)
29.6R2	042415_JC_1005_PEM	0.68	Other
29.6R2	050115_JC_1001_PFO	8.25	Other
30.4R2	042415_JC_1003_PSS	0.08	Other
31.1R2	042415_JC_1002_PEM	1.04	Exceptional (iii)
31R2	042415_JC_1001_PFO	12.09	Exceptional (iii)
32.6R3	110316_GM_1001_PFO	0.64	Exceptional (iii)
32.5R2	110316_GM_1001_PEM - 1	0.86	Exceptional (iii)
32.7R3	110316_GM_1001_PEM - 2	0.86	Exceptional (iii)
32.8R3	110316_GM_1001_PEM - 3	0.86	Exceptional (iii)
33.6R3	042115_JC_1003_PFO	1.59	Exceptional (iii)
34.7R2	042315_JC_1002_PEM	0.52	Exceptional (i, iii)

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]
34.7R2	042315_JC_1001_PFO - 1	8.90	Exceptional (i, iii)
34.8R3	042315_JC_1001_PFO - 2	8.90	Exceptional (i, iii)
35.4	042315_JC_1004_PFO	0.16	Other
35.5	010716_GM_1001_VP	0.03	Other
35.9	060117_MB_1001_PFO - 1	6.00	Exceptional (ii, iii)
36	060117_MB_1001_PFO - 2	6.00	Exceptional (ii, iii)
36	060117_MB_1001_PEM	0.81	Exceptional (ii, iii)
36.1	060217_MB_1001_PEM	0.39	Exceptional (ii, iii)
36.1	060217_MB_1001_PFO	2.29	Exceptional (ii, iii)
36.5R3	050615_JC_1001_PFO - 1	5.47	Exceptional (i, ii, iii)
36.6R3	050615_JC_1001_PFO - 2	5.47	Exceptional (i, ii, iii)
37.1R3	061615_DB_1002_PFO	2.08	Exceptional (iii)
37.5	061615_DB_1001_PEM	0.20	Exceptional (iii)
41.2	020117_GM_1006_PFO	1.04	Exceptional (iii)
41.5	020117_GM_1001_PUB	0.10	Other
44.8R2	041018_WA_002_PSS	0.06	Exceptional (iii)
45R2	052915_JC_1001_PEM	0.17	Exceptional (iii)
45.6	051115_JC_1001_PEM	0.26	Exceptional (iii)
48.1	090914_WA_001_PSS	0.22	Exceptional (iii)
48.1	090914_WA_002_PSS	0.02	Exceptional (iii)
49.3R3	041117_GM_1001_PFO	1.51	Exceptional (i, iii)
49.3R3	041117_GM_1001_PSS	1.16	Exceptional (i, iii)
50.6R3	072618_WA_001_PEM	0.45	Exceptional (iii)
50.6R4	072618_WA_002_PEM	1.04	Exceptional (iii)
Blue Mountain Lateral			
None			
Kidder Compressor Station			
26.8R2	102114_JC_001A_PSS - 2	0.62	Exceptional (i, iii)
26.8R2	102114_JC_001_PEM - 4	2.86	Exceptional (i, iii)
26.8R2	102114_JC_001_PFO	11.97	Exceptional (i, iii)
26.7	082515_BT_003_PEM	0.01	Other
26.6	112414_JC_004_PFO - 1	5.58	Other
26.7	112414_JC_004_PFO - 2	5.58	Other
26.6	082515_BT_004_PEM	0.00	Other
Access Roads			
None			

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]

Notes:

1. Source: PennDOT Pennsylvania county boundaries, dated 7/2018. Available at www.pasda.psu.edu.
2. All route deviations implemented after the FERC Certificate Application are denoted with an "R" and indicate a MP equation. MPs with an "R1" indicate route deviations implemented and provided to FERC prior to the issuance of the DEIS. MPs with an "R2" indicate route deviations implemented as part of the September 2016 Route Update. MPs with an "R3 indicate route deviations implemented post-FERC Certificate issuance. All MPs without an "R" indicate that the route has not changed since the Certificate Application.
3. In instances where a wetland is crossed by the proposed pipeline or workspace multiple times, crossing numbers (e.g. "-1", "-2") have been added to the Wetland ID.
4. Wetland ID Key: PEM = palustrine emergent, PFO = palustrine forested, PSS = palustrine scrub shrub
5. Resource Value Definitions: Pennsylvania Exceptional Value Wetland as defined by PA Code §105.17 (relating to special criteria for projects affecting important wetlands). Criteria are:
   - (i) Serves as habitat for fauna or flora listed as ''threatened'' or ''endangered''
   - (ii) Is hydrologically connected to or located within a 1/2-mile from habitat for fauna or flora listed as ''threatened'' or ''endangered'' and wetland dependent;
   - (iii) Located in or along the floodplain of the reach or tributaries of a wild trout stream or waters listed as exceptional value;
   - (iv) Located along an existing public or private drinking water supply.

S2.C Federal and State Threatened and Endangered Species Habitat

On behalf of PennEast, AECOM has consulted with the USFWS, National Marine Fisheries Service (NMFS), PGC, PFBC, and PADCNR to identify the potential presence of federally and state listed T&E species as well as species of special concern and significant habitats within the vicinity of the Project.

Table CA-L2-5 below lists the species identified through consultations with the aforementioned federal and state agencies as threatened, endangered, rare, candidate, or of concern in Carbon County. As requested in the PADEP's EA Form Instructions, PennEast submitted a Large Project Pennsylvania Natural Diversity Inventory (PNDI) review for rare, candidate, threatened, and endangered species under the jurisdiction of the USFWS, PFBC, PGC and PADCNR for the PennEast Pipeline Project. The results of the Large Project Review are included in Table CA-L2-5 below.

Table CA-L2-5
Federally and State Listed Species Potentially Occurring Within the Action Area Carbon County

Species Common Name	Scientific Name	Federal Status	State Status	Survey Status	Reporting Status	Status of State/Federal Review	Final State/Federal Clearance/Concurrence Issued
Indiana bat	*Myotis sodalis*	Endangered	Endangered	Surveys completed July 2018	Final survey report to be submitted by Fall 2018	Concurrence via informal consultation received along with Biological Opinion – November 28, 2017	USFWS has recommended that FERC re-initiate consultation due to changed action area resulting from proposed route modifications. No change in status anticipated for this species.
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Of Concern	Surveys completed July 2018	Final survey report to be submitted by Fall 2018	Biological Opinion issued November 28, 2017.	USFWS has recommended that FERC re-initiate consultation due to changed action area resulting from proposed route modifications. No change in status anticipated for this species.
Northeastern bulrush	*Scirpus ancistrochaetus*	Endangered	Endangered	All delineated wetlands surveyed, 2 properties remain to be delineated	Final survey report to be submitted by Fall 2019	Concurrence via informal consultation received along with Biological Opinion – November 28, 2017	USFWS has recommended that FERC re-initiate consultation due to changed action area resulting from proposed route modifications. No change in status anticipated for this species.
Bog turtle	*Glyptemys muhlenbergii*	Threatened	Endangered	Surveys completed June 2018	Final survey report to be submitted by Fall 2018	Biological Opinion issued November 28, 2017	USFWS has recommended that FERC re-initiate consultation due to changed action area resulting from proposed route modifications. No change in status anticipated for this species.
Timber rattlesnake	*Crotalus horridus*	Not Listed	Not Listed[1]	Surveys completed April 2017	Final survey report submitted April 2018	PFBC review complete for this species	October 11, 2018
Allegheny woodrat	*Neotoma magister*	Not Listed	Threatened	Surveys completed June 2018	Final survey report submitted October 2018	Ongoing consultation with PGC	NA
Eastern small-footed bat	*Myotis leibii*	Not Listed	Threatened	Surveys completed July 2018	Final survey report submitted October 2018	Ongoing consultation with PGC	NA
Northern Flying Squirrel	*Glaucomys sabrinus macrotis*	Not Listed	Endangered	Known habitat area documented by PGC	Mitigation Plan submitted October 2018	Ongoing consultation with PGC	NA
Northern cricket frog	*Acris crepitans*	Not Listed	Endangered	Surveys completed July 2018	Final survey report submitted September 2018	PFBC review complete for this species	October 11, 2018

Species Common Name	Scientific Name	Federal Status	State Status	Survey Status	Reporting Status	Status of State/Federal Review	Final State/Federal Clearance/Concurrence Issued
Rare Plants	*Bartonia paniculata*	Not Listed	Rare	Surveys completed August 2017	Final report submitted April 2018	PADCNR review complete	August 24, 2018
	Carex collinsii	Not Listed	Endangered				
	Carex paupercula	Not Listed	Threatened				
	Carex polymorpha	Not Listed	Endangered				
	Dicentra exima	Not Listed	Endangered				
	Eurybia radula	Not Listed	Not Listed[2]				
	Gaultheria hispidula	Not Listed	Rare				
	Myrica gale	Not Listed	Threatened				
	Platanthera belphariglottis	Not Listed	Not Listed[3]				

Notes:
1. Formerly PA Candidate, delisted in 2016
2. PA Proposed Status – Threatened
3. PA Proposed Status – Endangered and Sensitive Species

S2.C.1 Pennsylvania Natural Diversity Inventory (PNDI) Receipts

Correspondence between PennEast, USFWS, NMFS, PADCNR, PFBC, and PGC is included in JPA Section G-1. Correspondence and reports that identify the specific locations of protected species has been redacted and is included in a separate, privileged volume in JPA Section G-2.

S2.C.2 PNDI Potential Conflicts

PennEast has completed surveys for threatened and endangered species in Carbon County. The species that may be impacted by the Project in Carbon County include northern long-eared bat (*Myotis septentrionalis*, federal threatened), bog turtle, eastern small-footed bat (*Myotis leibii*, state threatened), timber rattlesnake (*Crotalus horridus*, delisted), Allegheny woodrat (*Neotoma magister*, state threatened), northern flying squirrel (*Glaucomys sabrinus macrotis*, state endangered) northern cricket frog, variable sedge, northern panic grass (*Dicanthelium boreale*, state status tentatively undetermined), rough-leaved aster, thread rush (*Juncus filiformis*, state species of concern), Appalachian climbing fern (*Lygodium palmatum*, state species of concern), white fringed orchid, and Torrey's bulrush (*Schoenoplectus torreyi*, state endangered). A summary of the surveys conducted and PNDI resolutions for these species is included below.

The PADCNR and PFBC have provided clearance letters for the Project dated August 24, 2018 and October 11, 2018, respectively. These letters are provided in JPA Section G-1. On November 28, 2017, the USFWS issued a Biological Opinion (BO) for impacts that the Project may have on the northern long-eared bat and bog turtle. In its cover letter to the FERC, the USFWS stated that the Project is not likely to adversely affect the dwarf wedgemussel, Indiana bat, or the northeastern bulrush. USFWS has since recommended that FERC re-initiate consultation to modify the 2017 BO under the minor change process. Re-initiation will result in a consultation update letter that addresses route amendments and updated survey results. The recommendation of re-initiation was made due to the changed action area resulting from proposed route modifications.

PennEast continues to coordinate with the PGC and USFWS to resolve PNDI potential conflicts. PennEast anticipates that the coordination will be complete within a couple of months, and therefore requests that the PADEP utilize a sequential review of the PNDI coordination in accordance with the PADEP's *Policy for PNDI Coordination during Permit Review and Evaluation* (Document Number 021-0200-001), which allows for a concurrent review of the permit application while the permit applicant completes PNDI coordination.

Northern Long-Eared Bat

In its BO, the USFWS concluded that tree removal within 0.25 mile of northern long-eared bat hibernacula is not likely to adversely affect the species, and vibrations generated by heavy machinery are not anticipated to result in micro-climatic or structural changes to hibernacula. However, the USFWS also concluded that tree removal within 150 feet of maternity roosts is likely to adversely affect northern long-eared bat individuals with maternity colonies close to the Project. Tree removal will occur outside of the

restricted pup season window, so this take is not prohibited by the 4(d) rule. To minimize impacts to the species, PennEast will implement the following conservation measures in Carbon County:

- PennEast will only clear trees ≥5 inches diameter at breast height (dbh) between November 1 and March 31.
- PennEast will only clear trees ≥3 inches dbh between November 15 and March 31 within known fall swarming habitat areas.
- PennEast will not blast within 0.25-mile of known northern long-eared bat hibernacula.
- PennEast will work with the USFWS to conduct vibration, and/or temperature and humidity monitoring within subterranean features found at Tunnel 34 prior to, during, and after construction as long as landowner access continues to be granted.
- Prior to construction, PennEast will file with the FERC Secretary, for review and written approval by the Director of Office of Energy Projects, a list of locations by MP where, in accordance with the BO, the USFWS is requiring tree clearing restrictions that are specifically applicable to federally listed bat species.

Bog Turtle

In the USFWS's BO, the USFWS concluded that an auger bore that is proposed under an occupied bog turtle wetland in Carbon County is not likely to adversely affect the species. However, other project sub-activities including use of vehicles and heavy machinery, impacts of sediment disturbance, watercourse crossings at tributaries that feed into bog turtle wetlands, rock blasting near bog turtle wetlands, access, and tree/vegetation removal are likely to adversely affect the bog turtle. To minimize impacts to the species, PennEast will implement the following conservation measures:

- PennEast committed to avoid and minimize disturbance to wetlands with known or presumed bog turtle presence, wherever feasible, by deviation, workspace adjustment, or trenchless crossing method.
- A Recognized Qualified Bog Turtle Surveyor (RQBTS) will be employed prior to construction and during periods of active construction. The RQBTS will have the authority to stop work at any time. Work will cease immediately if a bog turtle is encountered at any time, and the USFWS will be immediately notified.
- If the RQBTS is on-site and determines that the proposed method of crossing a particular wetland will result in unanticipated impacts to bog turtles, given the wetlands site-specific characteristics or potential for bog turtle presence, the RQBTS will consult with PennEast and the USFWS immediately for further direction.
- Project contractors will receive site-specific environmental training related to the environmental review process, minimizing wetland impacts, species of concern, bog turtle habitat, and special protections for specific watershed areas (this is typically done by the RQBTS).
- Construction activities near areas that could support bog turtles will be confined by the installation of habitat exclusion barriers designed to keep turtles from entering the limit of

disturbance outside of the wetland. This barrier will consist of backfilled 24-inch-high silt fence without voids. This barrier will be installed manually under the supervision of a RQBTS, in areas of soft soils and muck, and by equipment in uplands and areas containing 3-18 inch firm soils. Habitat exclusion barriers will be removed by hand immediately upon completion of all construction activities.

- Prior to construction, a RQBTS will oversee hand-clearing and removal of vegetation along the access path, the installation of the habitat exclusion barrier, and the placement of timber matting within the habitat exclusion barrier.
- Timber mats and equipment will be either new or pressure-washed of free-standing soil and vegetative materials prior to arrival on-site. This minimizes the potential impacts that could occur from the introduction of invasive plants, contaminants, or bog turtle pathogens or that can make their habitats unsuitable.
- Any matted wetland crossings will be completed in a manner that does not lower the water table or alter the hydrological characteristics of the wetland.
- Any HDD work proposed for crossing a wetland or waterbody with known, or presumed, bog turtle presence will take place outside of the winter hibernation months (October 15 to March 31), to avoid any potential subterranean disturbance that may occur during an inadvertent return of drilling fluid.
- At the known bog turtle wetland crossing in Carbon County, PA, PennEast will have a RQBTS on site before and during the auger bore installation, and PennEast will complete the crossing between April 1 and October 15, during a time when bog turtles are assumed to be active. This will avoid potential impacts to hibernating turtles at the crossing location.

The FERC's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures) will be adhered to for all activities in wetlands, including but not limited to signage, restrictions on fueling activities and repairs, and wetland restoration measures. The RQBTS will forward the results of pre-construction surveys, construction monitoring, Project timelines, and photographic documentation of site restoration to the USFWS and FERC. The Service will be contacted immediately if bog turtles are observed or if take occurs.

Timber Rattlesnake

Portions of the Project in Carbon County are within the range of the timber rattlesnake. Surveys have been completed for this species. Avoidance and minimization measures for the timber rattlesnake will include the re-creation of impacted gestation habitat in accordance with PFBC guidelines and the avoidance of occupied dens.

Eastern Small-Footed Bat

PennEast continues to coordinate with PGC to assess impacts to eastern small-footed bats. At this time, no occupied or presumed occupied habitat for the eastern small-footed bat is expected to be impacted; in such case, no mitigation will be necessary. If occupied or presumed occupied habitat of the species is identified and will be impacted, PennEast will coordinate with PGC to determine appropriate mitigation.

Allegheny Woodrat

PennEast has completed Allegheny Woodrat surveys and is in the process of coordinating with PGC. At this time, no occupied or presumed occupied habitat for the Allegheny Woodrat is expected to be impacted; in such case, no mitigation will be necessary.

Northern Flying Squirrel

Portions of the Project in Carbon County are within the range of the northern flying squirrel. This habitat is documented by the PGC and surveys are not needed. PennEast is developing a mitigation plan for this species, which will be reviewed and approved by the PGC prior to implementation.

Northern Cricket Frog

Portions of the Project in Carbon County are within the range of the northern cricket frog. PennEast has completed surveys for this species and its habitat, and has completed consultation with PFBC regarding this species. The PFBC has determined that the Project is not likely to adversely affect the northern cricket frog, as any potential impacts will be discountable and temporary in nature.

Pennsylvania Protected Plants

PennEast conducted rare plant surveys for targeted species. Individuals and/or populations of the following species were observed within the or near the proposed workspace in Carbon County: Variable sedge, northern panic grass, rough-leaved aster, thread rush, Appalachian climbing fern, white fringed orchid, and Torrey's bulrush.

PennEast will implement their Rare Plant Mitigation Plan (JPA Section G-2), which has been approved by the PADCNR. In this plan, PennEast committed to additional pre-construction surveys in the areas where rare plant populations were identified in surveys conducted from 2015-2018. During the pre-construction surveys, individual plants and/or the extents of population boundaries will be mapped. If any rare plants are observed within the proposed Project workspace, the avoidance, minimization, and mitigation measures that are outlined in the plan will be followed. Affected populations will be monitored for three growing seasons after construction, and monitoring reports will be submitted to the PADCNR following each year of monitoring.

S2.D Aquatic Resource Characterization

S2.D.1 Riverine Resources

The watercourse information contained within Table CA-L2-6 has the gradient class for each delineated watercourse in Carbon County as well as the watershed size as defined in the Pennsylvania Natural Heritage Program's (PNHP's) Aquatic Community Classification Project Steam Reach Watersheds data (PNHP 2018) and a summary of the results from the PA Riverine Condition L2RAP. Copies of the assessment area mapping and data sheets are provided in Appendix CA-L-2D. The Riverine Assessment

Area, Riparian Vegetation, and Riparian Zone of Influence utilized to complete PA Riverine Condition L2RAP were based on the delineated watercourse boundaries identified pre-construction.

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

The portion of the Project area in Carbon County is located within the Lime Hollow, Porter Run, Black Creek, Fourth Run, Tunkhannock Creek, Hickory Run, Hawk Run, Laurel Run, Mud Run, Panther Creek, Stony Creek, Yellow Run, Wild Creek, Pine Run, White Oak Run, Pohopoco Creek, Hunter Creek, Borger Creek, Buckwha Creek, and Aquashicola Creek watersheds. These watersheds are all located within the Delaware River basin and support cold water and cool water aquatic communities.

The watercourses associated with these aquatic communities typically consist of smaller, high-gradient, headwater and mid-reach watercourses with watersheds ranging in size from approximately 18 to 54 square miles (mi^2). The surrounding land uses in these watersheds consist primarily of forest and undeveloped land with some agricultural and residential, and few urban areas. Water quality tends to be higher in these watercourses with alkalinity and conductivity values ranging from low to relatively high and pH levels in the neutral range. Typical fish species found in these watercourses are comprised of brown trout (*Salmo trutta*), brook trout (*Salvelinus fontinalis*), rainbow trout (*Oncorhynchus mykiss*), fathead minnow (*Pimephales promelas*), pearl dace (*Margariscus margarita*), blacknose dace (*Rhinichthys atratulus*), and white sucker (*Catostomus commersoni*). Common aquatic macroinvertebrate taxa found in these waters include species from the Ephemeroptera, Plecoptera, and Trichoptera orders. According to the PFBC, the following watercourses within the Project area in Carbon County are listed as supporting natural trout reproduction: Black Creek, Fourth Run, Tunkhannock Creek, Hickory Run, Hawk Run, Laurel Run, Mud Run, Panther Creek, Stony Creek, Yellow Run, Wild Creek, Pine Run, White Oak Run, Pohopoco Creek, Hunter Creek, Borger Creek, Buckwha Creek, and Aquashicola Creek. The PFBC lists the following watercourses as Stocked Trout Waters: Buckwha Creek and Aquashicola Creek. As such, these watercourses provide the potential for trout fishing.

Appropriate nesting, spawning, rearing, resting, migration, feeding, and escape cover appear to be provided for the aquatic organisms within the larger watercourses identified within the Project area in Carbon County. Fin fish were observed within the majority of the identified perennial watercourses. Macroinvertebrate taxa were observed primarily within the perennial watercourses of the Project area in Carbon County. The substrate of the identified watercourses most often consisted of cobble and gravel; with boulder, sand, silt, and clay present. Course plant material, such as wood, was observed within the majority of the watercourses. These features can provide microhabitat for aquatic organisms. Resting areas were found within the moderate gradient areas of the watercourses (e.g., pools and runs). Migration within the Project area watercourses is possible, but was not observed during field investigations. Food sources appeared to be derived from both terrestrial and aquatic vegetation and invertebrates. Natural flushing occurs within the perennial watercourses as sediments and other particles are deposited along the banks and within the channels. Due to the seasonal flow of intermittent watercourses and periodic flow of the ephemeral watercourses, these features are not regularly flushed.

The flow patterns upstream and downstream of the Project area watercourses are a slightly sinuous channel type. The watercourses within the Project area in Carbon County range from high to low gradient and groundwater and overland runoff support flow for the identified intermittent and perennial watercourses. The identified watercourses carry surface water runoff and influence groundwater through the streambed.

The flood-prone areas of the Project area in Carbon County were observed to be generally functional. Flood-prone areas reduce the force, height, and volume of floodwaters to downstream areas by acting as a floodwater storage area. The flood-prone areas of the Project area in Carbon County were observed to be dominated by both native and non-native shrub and herbaceous vegetative species. Vegetation within flood-prone areas helps to slow runoff, trap sediments, and increase absorption of flood waters. The intact riparian corridors help prevent sedimentation and erosion

The most obvious source of pollution observed within the Project area in Carbon County was roadway and agricultural runoff. The watercourses within the Project area were adjacent to vegetated riparian corridors, which limited the effects of these pollution sources.

The watercourses within the Project area in Carbon County will either be crossed via open cut method, conventional bore, or HDD method. The watercourses crossed via open trench method will be restored to their original contours following construction, which is typically within two days. A 75-foot-wide limit of disturbance will typically be cleared around watercourses located in forested areas. Following restoration, a 50-foot-wide permanent ROW will be maintained for the life of the pipeline. No trees will be permitted to grow within that width. The watercourses crossed via HDD will have no above-ground disturbance.

Table CA-L2-6
Characterization of Impacted Riverine Resources in Carbon County[1]

Milepost[2]	Watercourse Identifier[3,4]	Gradient Class[5]	Watershed Size[5]	L2RAP Score
PennEast Mainline Pipeline				
24.5	110415_GM_1001_I_MI	1	1	0
26.5	102114_JC_1003_E_MI	2	2	0
26.6	102114_JC_1001_P_MI	2	2	0.91
30.4R2	042415_JC_1006_E_MI - 1	1	1	0.64
30.5R2	042415_JC_1006_E_MI - 2	1	1	0.64
31.2R2	042415_JC_1003_I_MI	1	1	0
31.2R2	042415_JC_1004_P_MI	1	1	0.74
31.2R2	042415_JC_1002_P_IN - 1	1	1	0.79
31.2R2	042415_JC_1002_P_IN - 2	1	1	0.79
31.2R2	042415_JC_1005_D_MI	1	1	0.83
32.7R3	110316_GM_1001_I_MI	2	3	0
32.9R3	110316_GM_1004_I_MI	2	3	0.63
32.8R3	110316_GM_1003_I_MI	2	3	0.77
33.2R3	042115_JC_1001_P_IN	2	3	0.91

Milepost[2]	Watercourse Identifier[3,4]	Gradient Class[5]	Watershed Size[5]	L2RAP Score
33.2R3	042115_JC_1002_P_MI	2	3	0.84
33.4R3	042115_JC_1003_E_MI	2	3	-
33.4R3	042115_JC_1004_I_MI	2	3	0.51
33.5R3	042115_JC_1005_E_MI	2	3	0.62
34.7R2	042315_JC_1001_I_MI	2	1	0.48
33.7R3	042115_JC_1006_I_MI	2	3	0
34.7R2	042315_JC_1002_P_MI	2	1	0.74
34.8R3	042315_JC_1003_P_IN	2	1	0.77
34.8R3	042315_JC_1003_I_IN	2	1	0.33
36.1	060117_MB_1001_P_MI	3	2	0.89
36.5R3	050615_JC_1002_I_MI	3	2	0
36.6R3	010816_DB_1001_I_MI	3	2	0
37.5	061615_DB_1001_I_MI	3	2	0.81
38.3	061615_DB_1002_P_IN	3	2	0.96
41	040517_BT_1001_E_MI	3	1	1
41.1	091516_GM_1002_E_MI	3	1	1
41.2	012717_GM_1002_P_MI	3	1	0.91
41.2	012717_GM_1003_P_MI	3	1	1
41.3	020117_GM_1002_P_MI	3	1	1
41.6	020117_GM_1001_P_MI	3	1	1
44.2R3	061715_DB_1001_I_MI	1	3	0.9
44.3R3	122215_DB_1001_P_MI	1	3	0.92
44.8R2	041018_WA_1000_P_MI	2	2	0.6
45R2	051115_JC_1002_P_MI	2	2	0.6
45.6	051115_JC_1001_P_MI	2	2	0.74
46.1	041018_WA_1002_I_MI	2	2	0
46.3	041018_WA_1003_I_MI	2	2	0.55
48.1	090914_WA_1000_P_IM	1	3	0.81
49.3R3	041217_GM_1001_P_IN	1	3	0.76
50.6R3	072618_WA_1008_I_MI	1	3	0
50.6R3	072618_WA_1010_I_MI	1	3	0.89
50.6R3	072618_WA_1009_I_MI	1	3	0.85
50.6R3	072618_WA_1007_I_MI	1	3	0.77
50.7R3	072618_WA_1005_I_MI	1	3	0.79
50.7R3	072618_WA_1004_I_MI	1	3	0.83
50.7R3	072618_WA_1003_I_MI	1	3	0.85
50.7R3	072618_WA_1001_P_MI	1	3	0.75

Milepost[2]	Watercourse Identifier[3,4]	Gradient Class[5]	Watershed Size[5]	L2RAP Score
50.7R3	072618_WA_1002_I_MI	1	3	0
50.7R3	072618_WA_1006_I_MI	1	3	0
Blue Mountain Lateral				
0.5R3	041017_GM_1001_P_IN	1	3	0.87
0.5R3	041017_GM_1001_P_MI	1	3	0.87
0.51R3	041117_GM_1002_E_MI	1	3	0.72
Kidder Compressor Station				
26.6	082515_BT_1001_P_IM	2	2	0.77
Access Roads				
24.4	063017_GM_1001_I_MI	3	1	0.85
25.1	012617_GM_1002_P_MI	2	1	0.75

Notes:

1. Source: PennDOT Pennsylvania county boundaries, dated 7/2018. Available at www.pasda.psu.edu.
2. All route deviations implemented after the FERC Certificate Application are denoted with an "R" and indicate a MP equation. MPs with an "R1" indicate route deviations implemented and provided to FERC prior to the issuance of the DEIS. MPs with an "R2" indicate route deviations implemented as part of the September 2016 Route Update. MPs with an "R3 indicate route deviations implemented post-FERC Certificate issuance. All MPs without an "R" indicate that the route has not changed since the Certificate Application.
3. In instances where a watercourse is crossed by the proposed pipeline or workspace multiple times, crossing numbers (e.g. "-1", "-2") have been added to the Watercourse ID.
4. Watercourse ID: P = perennial, I = intermittent, E = ephemeral, MA = major, IN = intermediate, MI = minor, C = canal, D = ditch
5. Source: PNHP Aquatic Community Classification Project Stream Reach Watersheds available at http://www.naturalheritage.state.pa.us/Aquatic_GIS.aspx

Riparian Property

Properties upstream and downstream of the Project area in Carbon County include existing roadway, agricultural land, forest land, and industrial land. These land uses should not have any further impact on the aquatic habitat within the Project area. Upstream and downstream properties will not be affected during the watercourse and wetland crossings. The areas that are to be open cut for pipeline installation will be restored to original grade as soon as practicable, therefore limiting the open exposure of the trench. This activity will be performed under appropriate weather conditions, and flow will be maintained during construction. The proposed Project will not result in the increase, diminution, or direction of flow; therefore the property rights of landowners upstream, downstream, or adjacent to the Project would not be affected by the Project.

S2.D.2 Wetland Resources

Table CA-L2-7 includes the hydrogeomorphic (HGM) classification, Palustrine Community Classification, and Chapter 105 Wetland Classification for each impacted wetland in Carbon County, as well as a summary of the results from the PA Wetland Condition L2RAP. Copies of the assessment area

mapping and data sheets are provided in Appendix CA-L-2E. The Assessment Area and 100- and 300-foot Zones of Influence utilized to complete the PA Wetland Condition L2RAP were based on the delineated wetland boundaries identified pre-construction.

In addition to the PA Wetland Condition L2RAP, a functional value assessment was conducted for each wetland delineated within the Project Study Area utilizing the USACE's *The Highway Methodology Workbook: Supplement*. (USACE, 1999). The completed forms are located in Appendix CA-L-2F.

The wetlands identified within the Study Area in Carbon County consisted primarily of PEM, PSS and PFO wetlands with various wetland complexes consisting of combinations of these vegetation cover types. The landform/geomorphic settings of these wetlands included hillside seep/springs, isolated depressions, and floodplains. The most common primary indicators of hydrology were Saturation (A3) and Oxidized Rhizospheres along Living Roots (C3). The most common secondary indicators observed were Drainage Patterns (B10) and Geomorphic Position (D2). The primary sources of hydrology differed between wetland types. Groundwater primarily provided hydrology to the hillside seep wetlands. The hydrology of the floodplain wetlands was provided by floodwaters from an adjacent watercourse. The hydrology of the isolated wetlands was provided by surface water runoff collection from surrounding uplands.

The most common dominant tree species observed were red maple (*Acer rubrum*) and eastern hemlock (*Tsuga canadensis)*. The most common dominant sapling/shrub species observed were black willow (*Salix nigra*), gray dogwood (*Cornus racemosa)*, and highbush blueberry (*Vaccinium corymbosum*). The most common herbaceous plant species observed were flat-top goldenrod (*Euthamia graminifolia*), jewelweed (*Impatiens capensis*), common rush (*Juncus effusus*), and sensitive fern (*Onoclea sensibilis*).

Wetland soils varied by wetland; however, some generalizations can be made. The most common matrix hues were 7.5YR and 10YR, with low chroma (≤2) and values ranging between 2 and 4. Soils often met the criteria for hydric soil indicators Depleted Matrix (F3) or Redox Dark Surface (F6). The most common soil texture was silt loam.

The wetlands identified within the Project area in Carbon County were located primarily within forest land and agricultural land. The Project is primarily crossing these resources in the forested areas where the riparian corridors are mainly intact and did not show evidence of sedimentation or erosion. These vegetated wetlands within the Project area in Carbon County have the ability to filter overland, storm, and flood flows.

Natural recharge for ground and surface waters appears to be present within the majority of the Project area wetlands in Carbon County. The hydrology of the identified wetlands was noted to be influenced by flooding when located adjacent to watercourses. These wetlands are influenced by the water levels of the adjacent watercourses and are able to store flood waters and allow for absorption. The combined effect of these functions results in a reduction of peak flows and downstream flooding.

The most obvious sources of pollution observed within the Project area in Carbon County were roadway and agricultural runoff. Wetlands were located within the floodways of several of the watercourses.

These areas contributed to pollution prevention by filtering, detaining, and/or transforming sediment, toxins, litter and/or nutrients carried in the runoff.

Table CA-L2-7
Characterization of Impacted Wetland Resources in Carbon County[1]

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]	HGM Classification[6]	Palustrine Community Classification[7]	PA Wetland Condition L2RAP Score
PennEast Mainline Pipeline						
24.2	110614_JC_004_PFO - 1	2.25	Other	R3c	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.95
24.3	110614_JC_004_PFO - 2	2.25	Other	R3c	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.95
24.5	110614_JC_002B_PFO	0.03	Other	R3c	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.96
26.4	102114_JC_001B_PFO	0.05	Exceptional (i, iii)	R3c	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.96
26.7	102114_JC_001A_PSS - 1	0.62	Exceptional (i, iii)	R3c	(SLG) Circumneutral Mixed Shrub Wetland	0.96
26.9R2	102114_JC_001A_PSS - 3	0.62	Exceptional (i, iii)	R3c	(SLG) Circumneutral Mixed Shrub Wetland	0.96
26.4	102114_JC_001_PEM - 1	2.86	Exceptional (i, iii)	R3c	(HG) Mixed Forb-Graminoid Wet Meadow	0.96
26.5	102114_JC_001_PEM - 2	2.86	Exceptional (i, iii)	R3c	(HG) Mixed Forb-Graminoid Wet Meadow	0.96
26.7	102114_JC_001_PEM - 3	2.86	Exceptional (i, iii)	R3c	(HG) Mixed Forb-Graminoid Wet Meadow	0.96

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]	HGM Classification[6]	Palustrine Community Classification[7]	PA Wetland Condition L2RAP Score
27R2	102314_JC_004_PEM	1.68	Exceptional (ii, iii)	DPh	(HG) Common Reed Marsh	-
27.1R2	102314_JC_002_PFO - 1	0.62	Exceptional (i, iii)	SLt	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.94
27.1R2	102314_JC_002_PFO - 2	0.62	Exceptional (i, iii)	SLt	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.94
27.1R2	102314_JC_002_PSS	19.29	Exceptional (i, iii)	R2	(SLG) Circumneutral Mixed Shrub Wetland	0.94
29.6R2	042415_JC_1005_PEM	0.68	Other	FLg	(HG) Mixed Forb-Graminoid Wet Meadow	0.95
29.6R2	050115_JC_1001_PFO	8.25	Other	FLg	(WLG) Red Maple-Sedge Palustrine Woodland	0.95
30.4R2	042415_JC_1003_PSS	0.08	Other	DFC	(SLG) Circumneutral Mixed Shrub Wetland	0.95
31.1R2	042415_JC_1002_PEM	1.04	Exceptional (iii)	R3	(HG) Mixed Forb-Graminoid Wet Meadow	0.93
31R2	042415_JC_1001_PFO	12.09	Exceptional (iii)	R3	(WLG) Hemlock-Mixed Hardwood Palustrine Woodland	0.93
32.6R3	110316_GM_1001_PFO	0.64	Exceptional (iii)	DFH	(WLG) Hemlock-Mixed Hardwood Palustrine Woodland	0.97

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]	HGM Classification[6]	Palustrine Community Classification[7]	PA Wetland Condition L2RAP Score
32.5R2	110316_GM_1001_PEM - 1	0.86	Exceptional (iii)	DFH	(HG) Mixed Forb-Graminoid Wet Meadow	0.97
32.7R3	110316_GM_1001_PEM - 2	0.86	Exceptional (iii)	DFH	(HG) Mixed Forb-Graminoid Wet Meadow	0.97
32.8R3	110316_GM_1001_PEM - 3	0.86	Exceptional (iii)	DFH	(HG) Mixed Forb-Graminoid Wet Meadow	0.97
33.6R3	042115_JC_1003_PFO	1.59	Exceptional (iii)	DFC	(FG) Oak-Mixed Hardwood Palustrine Forest	0.93
34.7R2	042315_JC_1002_PEM	0.52	Exceptional (i, iii)	SLt	(HG) Mixed Forb-Graminoid Wet Meadow	0.76
34.7R2	042315_JC_1001_PFO - 1	8.90	Exceptional (i, iii)	SLt	(WLG) Black Spruce-Tamarack Palustrine Woodland	0.76
34.8R3	042315_JC_1001_PFO - 2	8.90	Exceptional (i, iii)	SLt	(WLG) Black Spruce-Tamarack Palustrine Woodland	0.76
35.4	042315_JC_1004_PFO	0.16	Other	SLt	(WLG) Hemlock-Mixed Hardwood Palustrine Woodland	0.96
35.5	010716_GM_1001_VP	0.03	Other	DFA	(SVG) Sparsely Vegetated Vernal Pool Community	0.9
35.9	060117_MB_1001_PFO - 1	6.00	Exceptional (ii, iii)	R3	(FG) Oak-Mixed Hardwood Palustrine Forest	0.86

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]	HGM Classification[6]	Palustrine Community Classification[7]	PA Wetland Condition L2RAP Score
36	060117_MB_1001_PFO - 2	6.00	Exceptional (ii, iii)	R3	(FG) Oak-Mixed Hardwood Palustrine Forest	0.86
36	060117_MB_1001_PEM	0.81	Exceptional (ii, iii)	R3	(HG) Mixed Forb-Graminoid Wet Meadow	0.86
36.1	060217_MB_1001_PEM	0.39	Exceptional (ii, iii)	DFA	(HG) Mixed Forb-Graminoid Wet Meadow	0.89
36.1	060217_MB_1001_PFO	2.29	Exceptional (ii, iii)	DFA	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.89
36.5R3	050615_JC_1001_PFO - 1	5.47	Exceptional (i, ii, iii)	DFH	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.94
36.6R3	050615_JC_1001_PFO - 2	5.47	Exceptional (i, ii, iii)	DFH	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.94
37.1R3	061615_DB_1002_PFO	2.08	Exceptional (iii)	DFA	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.97
37.5	061615_DB_1001_PEM	0.20	Exceptional (iii)	DFC	(HG) Mixed Forb-Graminoid Wet Meadow	0.88
41.2	020117_GM_1006_PFO	1.04	Exceptional (iii)	R3	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	1
41.5	020117_GM_1001_PUB	0.10	Other	DFA	(SVG) Sparsely Vegetated Vernal Pool Community	1
44.8R2	041018_WA_002_PSS	0.06	Exceptional (iii)	R3c	N/A-Invasive-dominated (R. multiflora) floodplain	0.84

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]	HGM Classification[6]	Palustrine Community Classification[7]	PA Wetland Condition L2RAP Score
45R2	052915_JC_1001_PEM	0.17	Exceptional (iii)	R3	(HG) Reed Canary-grass Floodplain Grassland	0.84
45.6	051115_JC_1001_PEM	0.26	Exceptional (iii)	R3	(HG) Mixed Forb-Graminoid Wet Meadow	0.86
48.1	090914_WA_001_PSS	0.22	Exceptional (iii)	R2c	(SLG) Circumneutral Mixed Shrub Wetland	0.84
48.1	090914_WA_002_PSS	0.02	Exceptional (iii)	R2c	(SLG) Circumneutral Mixed Shrub Wetland	0.87
49.3R3	041117_GM_1001_PFO	1.51	Exceptional (i, iii)	R2c	(FG) Red Maple-Black Gum Palustrine Forest	0.99
49.3R3	041117_GM_1001_PSS	1.16	Exceptional (i, iii)	R2c	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.94
50.6R3	072618_WA_001_PEM	0.45	Exceptional (iii)	SLs	(SG) Golden Saxifrage-Pennsylvania Bittercress Spring Run	0
50.6R4	072618_WA_002_PEM	1.04	Exceptional (iii)	SLs	(SG) Golden Saxifrage-Sedge Rich Seep	1
Blue Mountain Lateral						
None						
Kidder Compressor Station						

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]	HGM Classification[6]	Palustrine Community Classification[7]	PA Wetland Condition L2RAP Score
26.8R2	102114_JC_001A_PSS - 2	0.62	Exceptional (i, iii)	R3c	(SLG) Circumneutral Mixed Shrub Wetland	0.96
26.8R2	102114_JC_001_PEM - 4	2.86	Exceptional (i, iii)	R3c	(HG) Mixed Forb-Graminoid Wet Meadow	0.96
26.8R2	102114_JC_001_PFO	11.97	Exceptional (i, iii)	R2c	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.96
26.7	082515_BT_003_PEM	0.01	Other	DFA	(HG) Mixed Forb-Graminoid Wet Meadow	0.98
26.6	112414_JC_004_PFO - 1	5.58	Other	SLt	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.96
26.7	112414_JC_004_PFO - 2	5.58	Other	SLt	(WLG) Red Maple-Mixed Shrub Palustrine Woodland	0.96
26.6	082515_BT_004_PEM	0.00	Other	DFA	(HG) Mixed Forb-Graminoid Wet Meadow	0.98
Access Roads						
None						

Notes:
1. Source: PennDOT Pennsylvania county boundaries, dated 7/2018. Available at www.pasda.psu.edu.
2. All route deviations implemented after the FERC Certificate Application are denoted with an "R" and indicate a MP equation. MPs with an "R1" indicate route deviations implemented and provided to FERC prior to the issuance of the DEIS. MPs with an "R2" indicate route deviations implemented as part of the September 2016 Route Update. MPs with an "R3 indicate route deviations implemented post-FERC Certificate issuance. All MPs without an "R" indicate that the route has not changed since the Certificate Application.

Milepost[2]	Wetland ID[3,4]	Delineated Size (acres)	Chapter 105 Wetland Classification[5]	HGM Classification[6]	Palustrine Community Classification[7]	PA Wetland Condition L2RAP Score

3. In instances where a wetland is crossed by the proposed pipeline or workspace multiple times, crossing numbers (e.g. "-1", "-2") have been added to the Wetland ID.
4. Wetland ID Key: PEM = palustrine emergent, PFO = palustrine forested, PSS = palustrine scrub shrub
5. Resource Value Definitions: Pennsylvania Exceptional Value Wetland as defined by PA Code §105.17 (relating to special criteria for projects affecting important wetlands). Criteria are:
    (i) Serves as habitat for fauna or flora listed as ''threatened'' or ''endangered''
    (ii) Is hydrologically connected to or located within a 1/2-mile from habitat for fauna or flora listed as ''threatened'' or ''endangered'' and wetland dependent;
    (iii) Located in or along the floodplain of the reach or tributaries of a wild trout stream or waters listed as exceptional value;
    (iv) Located along an existing public or private drinking water supply.
6. HGM Classification Key: DFA = Depression temporary, DFC = Depression seasonal, FLg = Flat organic soil, R2 = Riverine lower perennial, R2c = Riverine floodplain complex, R3 = Riverine upper perennial, R3c = Riverine headwater complex, R4 = Riverine intermittent, SLt = Topographic slope
7. Palustrine Community Classification Key: FG = Forest Group , HG = Herbaceous Group , SLG = Shrubland Group , WLG = Woodland Group

Functions and Values

The USACE's *Highway Methodology Workbook Supplement, Wetlands Function and Values A Descriptive Approach,* (September 1999) was utilized by PennEast to evaluate the functions and values of all wetland areas crossed by the proposed Project. The document provides guidance to permit applicants, consultants, and USACE project managers on how to identify and display wetland functions and values and is generally acceptable to the PADEP and the USACE. The document is a supplement to the Highway Methodology Workbook published by the Regulatory Branch in 1993, which defines procedures to integrate Section 404 permit requirements with highway planning and engineering and the National Environmental Policy Act (NEPA). The evaluation of wetland functions and values is an integral part of the overall phased approach of the Highway Methodology. The USACE defines functions as self-sustaining properties of a wetland ecosystem that exist in the absence of society and values as benefits that derive from either one or more functions and the physical characteristics associated with a wetland.

A Wetland Function-Value Evaluation Form was used to assess the functions/values of the impacted wetlands (Table CA-L2-8). In accordance with the method, eight functions (groundwater recharge/discharge, floodflow alteration, fish and shellfish habitat, sediment/toxicant/pathogen retention, nutrient removal/retention/transformation, production export, sediment/shoreline stabilization, and wildlife habitat), and five values (recreation, educational/scientific value, uniqueness/heritage, visual quality/aesthetics, and threatened/endangered species habitat) were assessed for each impacted wetland. Copies of the Wetland Function-Value Evaluation Forms for Carbon County can be found in Appendix CA-L-2F, and a summary table of the ecological functions served by each wetland delineated within the Project workspace Carbon County has been included below.

Table CA-L2-8
Functions and Values of Impacted Wetland Resources in Carbon County[1]

Milepost[2]	Wetland ID[3,4]	Function/Value
PennEast Mainline Pipeline		
24.2	110614_JC_004_PFO - 1	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat
24.3	110614_JC_004_PFO - 2	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat
24.5	110614_JC_002B_PFO	Groundwater Recharge/Discharge
26.4	102114_JC_001B_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
26.7	102114_JC_001A_PSS - 1	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
26.9R2	102114_JC_001A_PSS - 3	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat

Milepost[2]	Wetland ID[3,4]	Function/Value
26.4	102114_JC_001_PEM - 1	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
26.5	102114_JC_001_PEM - 2	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
26.7	102114_JC_001_PEM - 3	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
27R2	102314_JC_004_PEM	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal
27.1R2	102314_JC_002_PFO - 1	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat, Educational/Scientific Value
27.1R2	102314_JC_002_PFO - 2	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat, Educational/Scientific Value
27.1R2	102314_JC_002_PSS	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat, Educational/Scientific Value
29.6R2	042415_JC_1005_PEM	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat
29.6R2	050115_JC_1001_PFO	Groundwater Recharge/Discharge, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat
30.4R2	042415_JC_1003_PSS	Wildlife Habitat
31.1R2	042415_JC_1002_PEM	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
31R2	042415_JC_1001_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
32.6R3	110316_GM_1001_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat
32.5R2	110316_GM_1001_PEM - 1	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat
32.7R3	110316_GM_1001_PEM - 2	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat

Milepost[2]	Wetland ID[3,4]	Function/Value
32.8R3	110316_GM_1001_PEM - 3	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat
33.6R3	042115_JC_1003_PFO	Groundwater Recharge/Discharge, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
34.7R2	042315_JC_1002_PEM	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
34.7R2	042315_JC_1001_PFO - 1	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
34.8R3	042315_JC_1001_PFO - 2	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
35.4	042315_JC_1004_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal
35.5	010716_GM_1001_VP	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal
35.9	060117_MB_1001_PFO - 1	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
36	060117_MB_1001_PFO - 2	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
36	060117_MB_1001_PEM	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
36.1	060217_MB_1001_PEM	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
36.1	060217_MB_1001_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
36.5R3	050615_JC_1001_PFO - 1	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat

Milepost[2]	Wetland ID[3,4]	Function/Value
36.6R3	050615_JC_1001_PFO - 2	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat
37.1R3	061615_DB_1002_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Wildlife Habitat
37.5	061615_DB_1001_PEM	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Wildlife Habitat
41.2	020117_GM_1006_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal
41.5	020117_GM_1001_PUB	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal
44.8R2	041018_WA_002_PSS	Groundwater Recharge/Discharge, Production Export, Sediment/Shoreline Stabilization
45R2	052915_JC_1001_PEM	Floodflow Alteration, Sediment/Shoreline Stabilization
45.6	051115_JC_1001_PEM	Groundwater Recharge/Discharge, Floodflod Alteration, Sediment/Shoreline Stabilization
48.1	090914_WA_001_PSS	Floodflow Alteration, Sediment/Toxicant Retention, Sediment/Shoreline Stabilization, Wildlife Habitat
48.1	090914_WA_002_PSS	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Sediment/Shreline Stabilization, Wildlife Habitat
49.3R3	041117_GM_1001_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat, Recreation, Educational/Scientific Value, Uniqueness/Heritage, Endangered Species Habitat
49.3R3	041117_GM_1001_PSS	Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish Habitat, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat, Recreation, Educational/Scientific Value, Uniqueness/Heritage, Endangered Species Habitat
50.6R3	072618_WA_001_PEM	Groundwater Recharge/Discharge, Wildlife Habitat
50.6R4	072618_WA_002_PEM	Groundwater Recharge/Discharge, Sediment/Shoreline Stabilization, Wildlife Habitat
Blue Mountain Lateral		
None		
Kidder Compressor Station		

Milepost[2]	Wetland ID[3,4]	Function/Value
26.8R2	102114_JC_001A_PSS - 2	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
26.8R2	102114_JC_001_PEM - 4	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
26.8R2	102114_JC_001_PFO	Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Wildlife Habitat
26.7	082515_BT_003_PEM	Wildlife Habitat
26.6	112414_JC_004_PFO - 1	Groundwater Recharge/Discharge, Production Export, Wildlife Habitat
26.7	112414_JC_004_PFO - 2	Groundwater Recharge/Discharge, Production Export, Wildlife Habitat
26.6	082515_BT_004_PEM	Wildlife Habitat
Access Roads		
None		

Notes:

1. Source: PennDOT Pennsylvania county boundaries, dated 7/2018. Available at www.pasda.psu.edu.
2. All route deviations implemented after the FERC Certificate Application are denoted with an "R" and indicate a MP equation. MPs with an "R1" indicate route deviations implemented and provided to FERC prior to the issuance of the DEIS. MPs with an "R2" indicate route deviations implemented as part of the September 2016 Route Update. MPs with an "R3 indicate route deviations implemented post-FERC Certificate issuance. All MPs without an "R" indicate that the route has not changed since the Certificate Application.
3. In instances where a wetland is crossed by the proposed pipeline or workspace multiple times, crossing numbers (e.g. "-1", "-2") have been added to the Wetland ID.
4. Wetland ID Key: PEM = palustrine emergent, PFO = palustrine forested, PSS = palustrine scrub shrub

S2.D.3 Lacustrine Resources

In Carbon County, the proposed Project will cross two lacustrine resources. Table CA-L2-9 lists the name, unique Project identifier, and results of the PA Lacustrine Condition L2RAP evaluation of the lacustrine resources in Carbon County.

The Francis E. Walter Reservoir (Resource ID: 052115_JC_1001_P_MA) spans the Luzerne and Carbon County borders. Beltzville Lake (Resource ID: 052215_JC_1001_LAKE_MA (1) and052215_JC_1001_LAKE_MA (2)), crossed twice by the Project, is located approximately 4 miles East of Lehighton. The following is a summary of the results from the PA Lacustrine Condition L2RAP evaluation. Copies of the assessment area mapping and data sheets are provided in Appendix CA-L-2G.

The overall PA Lacustrine Condition L2RAP score for lacustrine resource 052115_JC_1001_MA was 0.70. The average depth of the proposed impact area ranged from 15 to 20 feet within the Assessment

Area. Both the Riparian Shoreline and Riparian Zone of Influence Vegetation Conditions consisted of a combination of High Marginal, dense herbaceous vegetation along the North side of the reservoir and Optimal, forested vegetation with a dense shrub layer along the South side of the reservoir. There were no observed Shoreline and Near-shore Human Alterations on either side of the proposed impacted area.

The overall PA Lacustrine Condition L2RAP score for the first proposed crossing of Beltzville Lake was 0.83. The average depth of the proposed impact area ranged from 15 to 20 feet within the Assessment Area. Both the Riparian Shoreline and Riparian Zone of Influence Vegetation Conditions consisted of Optimal, forested vegetation. There were no observed Shoreline and Near-shore Human Alterations on either side of the proposed impacted area.

The overall PA Lacustrine Condition L2RAP score for the second proposed crossing of Beltzville Lake was 0.85. The average depth of the proposed impact area ranged from 10 to 15 feet within the Assessment Area. Both the Riparian Shoreline and Riparian Zone of Influence Vegetation Conditions consisted of Optimal, forested vegetation. There were no observed Shoreline and Near-shore Human Alterations on either side of the proposed impacted area.

In addition to the PA Lacustrine Condition L2RAP, the inherent functions, habitat attributes, and recreational uses of the lacustrine resources identified in Carbon County were evaluated for the purposes of the Project.

The Francis E. Walter Reservoir was constructed by the USACE in 1961 for the purposes of flood risk management associated with the Lehigh River. In 1988, recreation became a Congressionally-authorized use of the reservoir. Since then boating, fishing, hunting, wildlife viewing, and picnicking have become popular public uses associated with the reservoir and the surrounding land. The reservoir offers a variety of habitats for many fish species which include large and smallmouth bass, stocked brown and rainbow trout, perch, and a variety of panfish. The land surrounding the reservoir consists almost entirely of forested PA State Game Lands with populations of whitetail deer, turkey, and other game species.

Beltzville Lake was constructed by the USACE in 1972 for the purposes of flood control, water supply, and recreation. The lake is part of Beltzville State Park and offers the following recreational uses to the public: hiking, mountain biking, swimming, boating, fishing, hunting, cross country-skiing, and water-skiing. The lake offers a variety of habitats for many species which include trout, striped bass, largemouth and smallmouth bass, walleye, muskellunge, and perch. The park surrounding the lake also offers hunting for whitetail deer, turkey, and other game species.

Table CA-L2-9
Characterization of Impacted Lacustrine Resources in Carbon County[1]

Milepost[2]	Watercourse Identifier[3,4]	Gradient Class[5]	Watershed Size[5]	PA Lacustrine Condition L2RAP Score
PennEast Mainline Pipeline				
43.5R3	052215_JC_1001_LAKE_MA (1)	1	3	0.85

Milepost[2]	Watercourse Identifier[3,4]	Gradient Class[5]	Watershed Size[5]	PA Lacustrine Condition L2RAP Score
44R3	052215_JC_1001_LAKE_MA (2)	1	3	0.84

Access Roads

None

Notes:

1. Source: PennDOT Pennsylvania county boundaries, dated 7/2018. Available at www.pasda.psu.edu.
2. All route deviations implemented after the FERC Certificate Application are denoted with an "R" and indicate a MP equation. MPs with an "R1" indicate route deviations implemented and provided to FERC prior to the issuance of the DEIS. MPs with an "R2" indicate route deviations implemented as part of the September 2016 Route Update. MPs with an "R3 indicate route deviations implemented post-FERC Certificate issuance. All MPs without an "R" indicate that the route has not changed since the Certificate Application.
3. In instances where a watercourse is crossed by the proposed pipeline or workspace multiple times, crossing numbers (e.g. "-1", "-2") have been added to the Watercourse ID.
4. Watercourse ID: P = perennial, I = intermittent, E = ephemeral, MA = major, IN = intermediate, MI = minor, C = canal, D = ditch
5. Source: PNHP Aquatic Community Classification Project Stream Reach Watersheds available at http://www.naturalheritage.state.pa.us/Aquatic_GIS.aspx

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