PennEast Pipeline Company, LLC

PENNEAST PIPELINE PROJECT

PHASE 1 (MP 0.0R1 TO 68.2R3)

APPLICATION FOR REVIEW UNDER SECTION 3.8 OF THE DELAWARE RIVER BASIN COMPACT

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Acronym List

Acronym	Definition
BMPs	best management practices
Certificate	FERC Certificate of Public Convenience and Necessity
Certificate Order	FERC's Order Issuing Certificates of Public Convenience and Necessity for the PennEast Pipeline Project (2018) as amended on March 19, 2020
Compact	Delaware River Basin Compact
CWA	Clean Water Act
DCNR	Pennsylvania Department of Conservation and Natural Resources
DRB	Delaware River Basin
DRBC	Delaware River Basin Commission
EA	Environmental Assessment
EI	environmental inspector
E&SCP	Erosion and Sediment Control Plan
ESCGP	Erosion and Sediment Control General Permit
EV	exceptional value
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FERC *Plan*	FERC *Upland Erosion Control, Revegetation, and Maintenance Plan*
FERC *Procedures*	FERC *Wetland and Waterbody Construction and Mitigation Procedures*
HDD	horizontal directional drill
JPA	Joint Permit Application
MLV	mainline valve
MMDth/d	million dekatherms per day
MP	milepost
NCDWQ	North Carolina Division of Water Quality
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
PA	Pennsylvania
PADEP	Pennsylvania Department of Environmental Protection
PCSM Plans	Post-Construction Stormwater Management Plans
PEM	palustrine emergent
PennEast	PennEast Pipeline Company, LLC
PFBC	Pennsylvania Fish and Boat Commission
PFO	palustrine forested
PGC	Pennsylvania Game Commission
PHMC	Pennsylvania Historical and Museum Commission
PPC Plan	Preparedness, Prevention, and Contingency Plan

Acronym	Definition
Project	PennEast Pipeline Project
PSS	palustrine scrub shrub
ROW	right-of-way
SFHA	Special Flood Hazard Areas
SFRMP	State Forest Resource Management Plan
T&E	Threatened and endangered
TOB	top of bank
Twp	Township
USACE	U.S. Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	U.S. Fish and Wildlife Service
WQC	Water Quality Certification

1.0 INTRODUCTION

PennEast Pipeline Company, LLC (PennEast) is providing the Delaware River Basin Commission (DRBC) with this narrative that details potential impacts of the PennEast Pipeline Project (Project) Phase 1 within the Delaware River Basin (DRB). The DRBC is an interstate compact agency charged with managing the water resources of the DRB on a regional basis without regard to political boundaries. The purpose of this submittal is to demonstrate that Phase 1 of the Project will not have a substantial effect on the water resources of the DRB or substantially impair or conflict with the DRBC's Comprehensive Plan.

The objectives of this narrative are to:

- Provide background information for the proposed Phase 1 components of the Project;
- Provide information regarding federal, state, and other agency coordination and permitting efforts;
- Provide information about the proposed impacts to water resources and changes to land uses that are anticipated by Phase 1 of the Project, and the measures implemented by PennEast to avoid, minimize, or mitigate these impacts; and
- Provide an assessment of the consistency of Phase 1 with the DRBC *Comprehensive Plan*, *Water Quality Regulations*, and *Floodplain Regulations*.

2.0 PROJECT DESCRIPTION

PennEast is proposing to install a new natural gas transmission pipeline to convey approximately 1.1 million dekatherms per day (MMDth/d) of natural gas produced in the Marcellus Shale production region in northern Pennsylvania to growing natural gas markets in New Jersey, eastern and southeastern Pennsylvania, and surrounding states. PennEast proposes to construct the Project in phases and is presently focusing on agency approvals applicable to Phase 1 of the Project. Phase 1 will extend between receipt points located in Dallas Township, Luzerne County, Pennsylvania, near Wilkes-Barre (milepost [MP] 0.0R1 and MP 0.3R3) to the Church Road Interconnects located in Bethlehem Township, Northampton County near Easton, Pennsylvania (MP 68.2R3). The portion of Phase 1 that will be located within the DRB and that is discussed in the following narrative starts at MP 14.4, which is located at the crest of Bald Mountain in Luzerne County, and extends south to MP 68.2R3. The pipeline and ancillary facility design have been reviewed by, and are consistent with, the applicable design standards of federal regulatory agencies with jurisdiction over natural gas pipeline systems design. Details pertaining to the status of the required permits and approvals issued by federal and state agencies for Phase 1 of the Project are discussed in Section 2.2 of this narrative.

2.1 Anticipated Schedule

Construction of Phase 1 of the Project will commence after right-of-way ("ROW") agreements and applicable regulatory permits and clearances have been acquired for Phase 1 of the Project and upon receipt of a Notice to Proceed from the Federal Energy Regulatory Commission ("FERC" or "Commission"). In PennEast's 2020 Amendment Application to FERC related to phasing Project construction, issuance of a Certificate of Public Convenience and Necessity ("Certificate") to amend the existing certificates for the Project has been requested by October 1, 2020.

Certain aspects of construction will need to be conducted in compliance with agency-imposed timing restrictions, including winter tree clearing to avoid northern long-eared bats (*Myotis septentrionalis*) and to minimize impacts to migratory birds protected under the Migratory Bird Treaty Act. PennEast will adhere to

other location-specific timing restrictions for trout streams and state-listed species. Tree felling is anticipated to begin in January 2021 and be completed by March 31, 2021. Construction of the Kidder Compressor Station and metering stations will begin immediately after tree clearing is complete. Pipeline construction is anticipated to start on or around March 31, 2021 and will continue through the spring, summer, and early fall. PennEast anticipates placing Phase 1 in service on or before November 30, 2021. Restoration activities will continue into the 2022 growing season.

2.2 Permitting Information

Construction, operation, and maintenance of Phase 1 of the Project will be conducted in accordance with PennEast's specifications and applicable requirements. The environmental permits, licenses, approvals, and certificates that have been or will be obtained for Phase 1 construction are identified in Table 2-1.

Table 2-1
Environmental Permits and Approvals for Phase 1 of the Project within the DRB

Agency	Permit/Approval	Status
FEDERAL		
FERC	Certificate of Public Convenience and Necessity	PennEast request for pre-filing review filed October 7, 2014. Application filed September 24, 2015. Supplemental information was provided in 2015 and 2016. FERC issued the Project Certificate on January 19, 2018. PennEast submitted an Amendment Application for the PA Revised Route on February 1, 2019. FERC issued an Environmental Assessment ("EA") on September 20, 2019 and on March 19, 2020 issued a certificate order on that amends the January 2018 Certificate. PennEast submitted an Amendment Application for the Church Road Interconnects and phasing Project construction on January 30, 2020. PennEast anticipates receiving a certificate for the 2020 Amendment Application by October 2020.
U.S. Army Corps of Engineers (USACE) - Philadelphia District	Clean Water Act ("CWA") Section 404, Rivers and Harbors Act Section 10	An initial consultation letter was sent on August 12, 2014. The introduction and coordination meeting was held in October 2014. Updated route materials were sent, and pre-application meetings were held in 2015. Delineation Verifications commenced in November 2015 and were completed in 2019. Applications were submitted on February 5, 2016. Route updates were provided subsequent to application submittal. District-specific Section 404/10 packages were submitted to each district on January 26, 2017. PennEast provided responses to public comments on the Philadelphia District Individual Permit in December 2017. Amended applications were submitted in December 2018. Additional Individual Permits were noticed on May 23, 2019, and responses to public comments were submitted on November 26, 2019. Supplemental information to support the Joint Permit Application and Preliminary Jurisdictional Determination Process was submitted on March 27, 2020.
USACE - Philadelphia District	Title 33 Section 408 Approvals	An initial consultation letter was sent on August 12, 2014. The pre-application meeting was held on July 16, 2015. The 408 Applications for Frances E. Walter Reservoir and Beltzville Lake were submitted on February 5, 2016. Supplemental information was provided in 2016-2018. A draft applicant-prepared EA was provided in April and May 2017. A final applicant-prepared EA was provided in July 2018. The 408 Approvals and Finding of No Significant Impacts was issued by the USACE on November 24, 2018.
U.S. Fish and Wildlife Service ("USFWS") - Pennsylvania	Endangered Species Act, Section 7 Consultation and Clearance	An initial consultation letter was sent on August 12, 2014. Coordination has continued from 2014 through 2020. USFWS issued a Biological Opinion for the Project on November 28, 2017. USFWS amended the Biological Opinion on July 29, 2019. On March 5, 2020, the USFWS confirmed that the additional workspace associated with the Church Road Interconnects will not result in effects above what was analyzed in the July 29, 2019 Opinion.

Agency	Permit/Approval	Status
National Marine Fisheries Service ("NMFS")	Endangered Species Act, Section 7 Consultation and Clearance	An initial consultation letter was sent on August 12, 2014. The response was received stating that no threatened or endangered species under the jurisdiction of the NMFS are known to occur in the Project area and no further consultation is necessary.
STATE – PENNSYLVANIA		
Pennsylvania Department of Environmental Protection ("PADEP") – Regional Permit Coordination Office	• Water Obstruction and Encroachment Permits • Submerged Lands License Agreements • Section 401 Water Quality Certification ("WQC") • Erosion and Sediment Control General Permit ("ESCGP") • Plan Approval and Operating Permit for a Non-Major Source	An initial consultation letter was sent on August 12, 2014. A coordination meeting was held in November 2014. Updated route materials were sent in 2015 and 2016. The pre-application meetings were held in 2015; additional meetings were held in 2016, 2018, 2019, and 2020. • Water Obstruction and Encroachment Permit Applications and Submerged Land License Agreements documentation were submitted on February 5, 2016. Amended applications were submitted in December 2018. The application was determined to be administratively complete on January 25, 2019. Technical comments were received on July 3, 2019. Revised joint permit applications ("JPAs") in response to technical comments were submitted on October 30, 2019. JPA supplemental information related to staging Project construction and updated agency correspondence was submitted on March 27, 2020. • A Section 401 WQC application was submitted on February 5, 2016. The 401 WQC was issued on February 7, 2017. • The ESCGP-2 application was submitted on March 10, 2016. The amended application (ESCGP-3) was submitted in December 2018. The application was determined to be administratively complete on January 25, 2019. Technical comments were received on July 3, 2019. Revised ESCGP in response to technical comments were submitted on October 30, 2019. ESCGP supplemental information was submitted on March 27, 2020 to include workspace changes at the proposed Church Road Interconnects. • The plan approval application was submitted on March 3, 2016.
Pennsylvania Game Commission ("PGC")	Threatened and Endangered ("T&E") Species Consultation and Clearance	An initial consultation letter was sent on August 12, 2014. Coordination has continued from 2014 through 2020. The PGC issued concurrence on January 9, 2019. Additional coordination for Project changes occurred in October 2019 and January 2020. In a letter dated March 10, 2020, the PGC confirmed that no new surveys were required for the Project changes and no impacts are anticipated to species under PGC jurisdiction.

Agency	Permit/Approval	Status
Pennsylvania Fish and Boat Commission ("PFBC")	• T&E Species Consultation and Clearance • Aid to Navigation Plan Approval Permit for Use of Explosives in Commonwealth Waters	An initial consultation letter was sent on August 12, 2014. Coordination has continued from 2014 through 2020. On November 22, 2019, the PFBC issued a Special Take Permit for potential bog turtle impacts in Northampton County, concluding consultation. Additional coordination for Project changes occurred in October 2019 and January 2020. In a letter dated January 30, 2020, the PFBC confirmed that no new surveys were required for the Project changes and no new impacts are anticipated to species under PFBC jurisdiction.
Pennsylvania Department of Conservation and Natural Resources ("DCNR")	T&E Species Consultation and Clearance	An initial consultation letter was sent on August 12, 2014. Coordination has continued from 2014 through 2020. The DCNR issued their concurrence on August 24, 2018. Additional coordination for Project changes occurred in October 2019 and January 2020. In a letter dated February 4, 2020, the DCNR confirmed that no new surveys were required for the Project changes and no new impacts are anticipated to species under DCNR jurisdiction.
Pennsylvania Historical and Museum Commission ("PHMC")	National Historic Preservation Act, Section 106 Consultation and Clearance	An initial consultation letter was sent on August 20, 2014. Coordination has continued from 2014 through 2020. The PHMC has reviewed archaeological survey results for the Project's APE in Pennsylvania and has concurred with PennEast's recommendations in letters concluding on February 7, 2020. The PHMC has reviewed architectural history survey results for the Project's APE within Pennsylvania and has concurred with PennEast's recommendations in letters concluding February 26, 2020.
COUNTY		
Luzerne Conservation District	ESCGP Technical Review	An initial consultation letter was sent on August 12, 2014. Pre-application meetings were held in 2015, and route updates were provided in 2015 and 2016. An ESCGP-2 application was submitted on March 10, 2016. An amended application (ESCGP-3) was submitted in December 2018. The application was determined to be administratively complete on January 25, 2019. The PADEP will administer the permit and complete its technical review simultaneous with Luzerne Conservation District's technical review. Technical comments from consolidated PADEP and conservation district reviews were received on July 3, 2019. The revised ESCGP in response to technical comments was submitted on October 30, 2019.

Agency	Permit/Approval	Status
Carbon Conservation District	ESCGP Technical Review	An initial consultation letter was sent on August 12, 2014. Pre-application meetings were held in 2015, and route updates were provided in 2015 and 2016. An ESCGP-2 application was submitted on March 10, 2016. An amended application (ESCGP-3) was submitted in December 2018. The application was determined to be administratively complete on January 25, 2019. The PADEP will administer the permit and complete its technical review simultaneous with Carbon Conservation District's technical review. Technical comments from consolidated PADEP and conservation district reviews were received on July 3, 2019. The revised ESCGP in response to technical comments was submitted on October 30, 2019.
Monroe County Conservation District	ESCGP Technical Review	An amended application (ESCGP-3) that included Monroe County was submitted in December 2018. The application was determined to be administratively complete on January 25, 2019. The PADEP will administer the permit and complete its technical review simultaneous with Monroe County Conservation District's technical review. Technical comments from consolidated PADEP and conservation district reviews were received on July 3, 2019. The revised ESCGP in response to technical comments was submitted on October 30, 2019.
Northampton County Conservation District	ESCGP Technical Review	An initial consultation letter was sent on August 12, 2014. Pre-application meetings were held in 2015, and route updates were provided in 2015 and 2016. An ESCGP-2 application was submitted on March 10, 2016. An amended application (ESCGP-3) was submitted in December 2018. The application was determined to be administratively complete on January 25, 2019. The PADEP will administer the permit and complete its technical review simultaneous with Northampton Conservation District's technical review. Technical comments from consolidated PADEP and conservation district reviews were received on July 3, 2019. The revised ESCGP in response to technical comments was submitted on October 30, 2019. The ESCGP supplemental information was submitted on March 27, 2020 to include workspace changes at the proposed Church Road Interconnects.

2.3 Project Location and Characteristics

The proposed Project, made up of Phase 1 and Phase 2, will ultimately entail the construction of approximately 115 miles of a new 36-inch mainline pipeline beginning at MP 0.0R1, within the Susquehanna River Basin in Dallas Township, Luzerne County, Pennsylvania, extending to MP 114.01R3 within the Lower Hudson River Basin in Pennington, Mercer County, New Jersey. This application focuses on the Phase 1 facilities located in the DRB, which consists of the area between MP 14.4 located at the crest of Bald Mountain in Luzerne County and MP 68.2R3 located at the Church Road Interconnections near Easton in Northampton County. Construction of the Project will also involve the development of new aboveground facilities including a natural gas compressor station, which has been identified as the Kidder Compressor Station, as well as multiple associated aboveground ancillary facilities (e.g., pipeline interconnects and mainline valves ["MLVs"]). Ancillary facilities have been proposed within the permanent ROW of the mainline and lateral pipeline systems. The Kidder Compressor Station facility is proposed in the vicinity of MP 26.7 in Kidder Township, Carbon County, Pennsylvania, which is also located in the DRB. A depiction of PennEast's proposed Phase 1 pipeline alignment and aboveground facilities can be found on the Project figures included in Appendix A-1.

2.4 Facilities within the DRB

PennEast's Phase 1 Project facilities within the DRB include the development of the mainline pipeline beginning at MP 14.4, near Bald Mountain in Luzerne County, and continuing to MP 68.2R3, near Easton, Northampton County, Pennsylvania. Additional facilities include construction of the Kidder Compressor Station at MP 26.7 in Carbon County, the Blue Mountain Interconnect near MP 49.8R3 in Carbon County, the Church Road Interconnections at MP 68.2R3 in Northampton County, and MLVs in Luzerne, Carbon, and Northampton Counties.

Tables 2-2 and 2-3 provide a summary of the proposed Phase 1 Project facilities, by MP, that are located within the DRB. Figures depicting the location of the Phase 1 portion of the proposed pipeline and aboveground facilities within the limits of the DRB can be found in Appendix A-1.

Table 2-2
Phase 1 Pipeline Facilities within the DRB

PennEast Mainline Route	36-inch new pipeline	53.3	0.0R1	68.2R3	PA	Luzerne, Carbon, Monroe, Northampton
Blue Mountain Lateral	4-inch new pipeline	0.5	BL-0.0	BL-0.51R3	PA	Carbon

[1] MPs shown are based on alignment sheet information. Actual mileage may differ due to rounding and station equations.

Table 2-3
Phase 1 Aboveground Facilities within the DRB

Facility Location	Type[1]	New/ Modified	MP[2]	Municipality	County	Coordinates
PennEast Mainline Pipeline	MLV-2	New	19.5	Bear Creek Twp	Luzerne	41° 10' 50.892" N, 75° 41' 48.652" W
	Kidder Compressor Station	New	26.7	Kidder Twp	Carbon	41° 4' 52.248" N, 75° 39' 45.597" W
	MLV-3	New	32.3R2	Kidder Twp	Carbon	41° 0' 56.261" N, 75° 37' 2.993" W
	MLV-4	New	46	Towamensing Twp	Carbon	40° 51' 42.002" N, 75° 31' 52.758" W
	MLV-6	New	57	Moore Twp	Northampton	40° 46' 6.690" N, 75° 26' 39.997" W
	MLV-7	New	62.4R3	Upper Nazareth Twp	Northampton	40° 43' 48.756" N, 75° 21' 49.920" W
	Church Road Interconnects	New	68.2R3	Bethlehem Twp	Northampton	40° 40’ 33.24” N, 75° 17’ 38.04 “ W
Blue Mountain Lateral	Blue Mountain Side Valve	New	BL - 0R3	Lower Towamensing Twp	Carbon	40° 49' 10.159" N, 75° 29' 43.875" W
	Blue Mountain Interconnect (UGI Central Penn Gas, Inc)	New	BL- 0.51R3	Lower Towamensing Twp	Carbon	40° 49' 6.133" N, 75° 30' 19.535" W

[1] MLV-5 has been removed from the Project scope; however, the subsequent MLV numbers were not revised to reflect the removal.

[2] MPs shown are based on alignment sheet information and are based on pipeline centerline. Actual mileage may differ due to rounding and station equations.

3.0 SUMMARY OF WATER RESOURCE IMPACTS WITHIN THE DRB

Construction and operation of Phase 1 of the Project will involve crossing and temporarily or permanently impacting water resources located within the DRB. The DRBC defines water resources as:

> *"Water resources" shall include water and related natural resources in, on, under, or above the ground, including related uses of land, which are subject to beneficial use, ownership or control. (DRBC Compact ["Compact"] Section 1.2(i))*

Water resources include the wetlands, waterbodies, floodplains and floodways, groundwater, and related land uses crossed by the Phase 1 ROW, facilities, and access roads. Given the "cross country" linear nature of the Phase 1 alignment, temporary and permanent impacts to these resources are unavoidable. The following sections provide a summary of the impacts that Phase 1 will have on these resources, and the measures that PennEast will implement to avoid impacts to these resources where practicable, minimize impacts where possible, and mitigate where appropriate.

Each of these impacts is further evaluated in relationship to relevant DRBC's policies and regulations.

3.1 Land Use Types Crossed within the DRB Area[1]

Construction and operation of the Phase 1 facilities will result in both temporary and permanent alterations to land use and land cover types within the DRB. The alignment of the pipeline has been co-located within, or parallel to, existing, previously disturbed, and maintained pipeline and transmission line ROWs to the extent practicable. Co-location with these existing linear features has reduced the overall impact to the adjacent forested areas, which is the dominant land use crossed by the Project. Forest cover within the 30-foot-wide operational ROW will be converted to open lands. The workspace outside of the 30-foot-wide operational ROW will be allowed to revert to pre-construction conditions. Other land uses crossed will be less effected as they will retain their original agricultural, residential, or industrial/commercial character. A summary of the land use types crossed by Phase 1 of the Project within the DRB can be found in Table 3-1.

[1] For context and completeness, this Section 3.1 discusses all land use impacts caused by Phase 1 of the Project within the DRB, whether related to DRBC jurisdictional "water resources" or not.

Table 3-1
Land Use Acreage Affected by Construction and Operation of Phase 1 of the Project within the DRB

County	Begin MP[1]	End MP[1]	Agricultural[2]		Forest/ Woodland[3]		Open Land[4]		Residential[5]		Industrial/ Commercial[6]		Open Water[7]		Total	
			Temp. Land Use acres[8]	Perm. Land Use acres[9]	Temp. Land Use acres[8]	Perm. Land Use acres[9]	Temp. Land Use acres[8]	Perm. Land Use acres[9]	Temp. Land Use acres[8]	Perm. Land Use acres[9]	Temp. Land Use acres[8]	Perm. Land Use acres[9]	Temp. Land Use acres[8]	Perm. Land Use acres[9]	Temp. Land Use acres[8]	Perm. Land Use acres[9]
Luzerne	14.4	23.0	0.0	0.0	86.0	31.0	11.3	0.2	0.3	0.0	0.4	0.1	0.3	0.2	98.3	31.5
Carbon	23.0	50.7R3	28.9	8.4	182.3	107.1	40.4	12.1	1.9	0.9	7.0	4.8	0.3	0.6	260.8	133.9
Monroe	50.7R3	51.7R3	0.0	0.0	4.4	2.9	1.3	0.5	0.0	0.0	1.8	0.1	0.0	0.0	7.5	3.5
Northampton	51.7R3	68.2R3	102.5	38.8	27.1	13.4	2.5	1.2	7.8	4.5	11.2	2.1	0.0	0.0	151.1	60.0
		TOTALS	**131.4**	**47.2**	**299.8**	**154.4**	**55.5**	**14.0**	**10.0**	**5.4**	**20.4**	**7.1**	**0.6**	**0.8**	**517.7**	**228.9**

1. MP values calculated using station equations to relate current route to the route at the time of the September 2015 FERC submission.
2. Agricultural Land – Active cropland, pasture, orchards, vineyards, and/or hay fields.
3. Forest and Woodland – Tracts of upland or wetland forest or woodland that would be removed for the construction ROW or extra work or staging areas.
4. Open Land – Non-forested lands, herbaceous and scrub-shrub wetlands, and maintained utility ROW.
5. Residential Land – Residential yards, residential subdivisions, and planned new residential developments.
6. Industrial or Commercial Land – Electric power or gas utility stations, manufacturing or industrial plants, landfills, mines, quarries, commercial or retail facilities, and roads.
7. Open Water – Water crossings greater than 100 feet.
8. Temporary land use impacts include the Project footprint outside of the 30-foot operational ROW, permanent aboveground facilities, and permanent access roads.
9. Permanent land use impacts are limited to the 30-foot operational ROW, permanent aboveground facilities, and permanent access roads.

3.1.1 Land Use Impacts Resulting from Construction and Operation of Phase 1 of the Project within the DRB

Land use impacts resulting from construction of Phase 1 of the Project within the DRB will result in approximately 746.4 acres of disturbance associated with installation of the pipeline and aboveground facilities. Of the 746.4 acres, operation of Phase 1 will account for approximately 195.6 acres of permanent disturbances associated with maintenance of a 30-foot-wide pipeline ROW and operation of the aboveground facilities, including associated access roads. As discussed in Section 2.4, the proposed Phase 1 Project facilities within the DRB will consist of approximately 53.3 miles of 36-inch diameter mainline pipeline, 0.5 mile of 4-inch diameter Blue Mountain lateral pipeline, the Kidder Compressor Station, interconnects, and MLVs. Table 3-2 provides a summary of Phase 1 impacts within the DRB depicted by facility type for construction and operation of the Project, which includes the access roads and wareyards.

Table 3-2
Land Requirements for Phase 1 Facilities within the DRB

Facility	Pipeline Length (miles)	Temporary Workspace for Construction (acres)[1]	Permanent Easement (acres)[2]	Total Workspace for Construction (acres)[3]	30' Maintained ROW (acres)
36-inch mainline pipeline	53.3	299.2	295	594.2	193.7
4-inch Blue Mountain Lateral	0.5	2.6	3	5.6	1.9
Aboveground Facilities	-	3.2	30.1	33.3	-
Access Roads	-	77.9	-	77.9	-
Wareyards	-	8.0	-	8.0	-
Staging Areas	-	27.4	-	27.4	-
Total Project	53.8	418.3	328.1	746.4	195.6

Notes:
1. Temporary workspace acreage was calculated for all workspace outside of the permanent easement.
2. Permanent easement acreage was calculated within the generally 50-foot-wide permanent easement that PennEast has acquired for construction and operation.
3. Total construction workspace acres = temporary workspace for construction acres + permanent easement acres
4. PennEast will maintain a 30-foot-wide operational ROW after Project construction. Workspace outside of the operational ROW will be allowed to revert to the pre-construction land use.

Typical construction and operational ROW widths for new pipeline along the Phase 1 pipeline corridor are shown on the alignment sheets in the Non-Point Source Pollution Control Plan (Appendix B-2) of this application. The typical construction ROW width for Project areas is generally 100 feet consisting of a new 50-foot permanent easement plus an average temporary workspace of 50 feet. The construction ROW is reduced in some areas to minimize impacts to environmentally sensitive areas and residential areas. The construction ROW is expanded beyond 100 feet in areas where specialized construction techniques such as horizontal directional drill ("HDD"), road crossings, or steep slopes require additional workspace. PennEast will only maintain a 30-foot-wide operational ROW within the 50-foot-wide permanent easement.

3.2 Wetland Impacts within the DRB

The proposed Project will be constructed in compliance with applicable federal regulations and guidelines, and the Project-specific permit conditions. Construction of the Project will commence after ROW and applicable regulatory permits and clearances have been acquired for the Project. Construction of the Project will involve primarily temporary impacts to regulated wetlands within the pipeline ROW. This section summarizes the wetlands identified within the proposed Phase 1 Project footprint within the DRB, PennEast's efforts to avoid and minimize wetland impacts, and proposed construction techniques.

3.2.1 Wetland Identification

PennEast conducted wetland delineations for all Phase 1 Project workspace in accordance with the USACE 1987 Wetland Delineation Manual (Environmental Laboratory, 1987) and the regional USACE supplements, as applicable. PennEast conducted on-site field reviews with the USACE through the Section 404 Permit Application process to confirm the accuracy of the wetland boundaries delineated for the Project in Pennsylvania. PennEast has conducted 15 site visits with USACE Philadelphia District between 2015 and 2019 to verify the location and extent of environmental features within the DRB.

The USFWS wetland classification system described by Cowardin et al. (1979) was used to classify the wetlands that will be affected by Phase 1 of the Project. The wetlands in the Project area were identified as:

- Palustrine Emergent Wetlands ("PEM");
- Palustrine Scrub-Shrub Wetlands ("PSS"); and
- Palustrine Forested Wetlands ("PFO").

Table 3-3 provides a summary of wetland classifications affected by construction and operation of Phase 1 of the Project by facility type within the DRB. Detailed tables accounting for impacts and listing individual wetlands crossed by Phase 1 of the Project can be found within Appendix C. Wetland impacts have been submitted to the USACE and PADEP as part of the CWA Section 401 WQC and Section 404 permit review processes. Mapping depicting the location of the Project facilities and the wetlands crossed by the Project can be found in Appendix A-2.

Table 3-3
Summary of Wetlands Affected by Construction and Operation of Phase 1 within the DRB

Facility[1]	Cowardin Classification[2]	Length Crossed (feet)[3]	Temporary Impact Acreage[4,5]	Acreage of PFO and PSS Conversion Within 30-foot Maintained ROW[5,6]	Acreage of Permanent Fill[5]	Total Impact Acreage[5]
PennEast Mainline Pipeline						
	PEM	4,986	2.279	-	-	2.279
	PSS	8,377	8.090	5.039	-	13.129
	PSS	2,443	0.479	0.278	-	0.757
Kidder Compressor Station						
	PEM	137	-	-	0.036	0.036
	PSS	237	-	0.172	-	0.172
	PFO	54	0.068	0.001	-	0.029
	PFO Mosaic	68	-	-	0.024	0.024
Access Roads						
	PEM	184	0.096	-	-	0.096
	PSS	1,200	0.792	-	-	0.792
	PFO	-	-	-	-	-
Total		17,686	11.804	5.49	0.060	17.354

Notes:

1. There are no wetland impacts associated with the Blue Mountain Lateral, the Blue Mountain Interconnect, or the Church Road Interconnects.
2. Wetland Cover Type based on Cowardin, 1979. PEM = palustrine emergent, PSS = palustrine scrub shrub, PFO = palustrine forested.
3. Crossing widths are measured along the pipeline centerline, as applicable. In instances where the pipeline does not cross a wetland, crossing widths are measured within the workspace parallel to the pipeline or along the access road centerline.
4. Temporary impact acres include acreages of wetlands that will be impacted during project construction (within the 50-foot-wide permanent easement, temporary workspace, and additional temporary workspace). This calculation excludes acreages of PFO and PSS wetlands that will be maintained as PEM wetlands within the 30-foot-wide operational ROW, wetlands that will be filled, and wetlands that will be crossed under using HDD technology.
5. Impact acreages are provided to the one-thousandth of an acre consistent with applications submitted to the USACE and PADEP and as itemized in Appendix C.
6. A 30-foot-wide ROW will be maintained through PFO and PSS wetlands, resulting in the conversion of PFO and PSS to PEM wetlands.

3.2.2 Avoidance and Minimization

PennEast has routed the proposed pipeline facilities and work areas to avoid and minimize effects on wetlands and waterbodies to the greatest extent practicable while maintaining engineering standards and safety. PennEast evaluated nine (9) key, major route alternatives that would meet the Project's purpose and need. Existing utility corridors (natural gas pipelines, liquid pipelines, electric transmission, water, and sewer) were examined to identify potential areas where the Project's pipeline could parallel or be co-located within an existing maintained ROW. This assessment found that some of these ROWs had been encroached upon by residential and commercial development, resulting in inadequate space for the staging and construction of an additional pipeline between the existing facilities and the neighboring

developments. Where environmental impacts were not greater, the Project was aligned with as many existing utility corridors as possible to ensure that the Project can be safely constructed and operated and satisfy the Project customers' demands.

Necessary adjustments to the Project route were also made to account for engineering, environmental, safety, and land use constraints that were identified during the environmental survey process. Landowner and stakeholder input also resulted in minor route adjustments. PennEast further assessed potential impacts to wetlands and waterbodies within the Study Area. Within the designated corridor, the centerline alignment and workspace limits were altered to avoid wetlands and waterbodies to the extent practicable. Where impacts to wetland and waterbodies could not be avoided, PennEast designed the Project to minimize the impacts through changes to the route, workspace, and construction techniques.

3.2.3 Construction Techniques for Wetland Crossings

PennEast evaluated each wetland crossing location to determine whether conventional open-cut or trenchless construction techniques would be the most suitable crossing method. Several criteria were considered in determining the most appropriate crossing method:

- Geologic conditions;
- Topographic conditions;
- Available workspace; and
- Practicality.

3.2.3.1 Trenchless Construction Methods

PennEast evaluated using trenchless construction technology to cross sensitive resources, including HDD, Direct Pipe®, microtunneling, and conventional bore. These trenchless construction methods would eliminate surface impacts to wetlands and waterbodies.

HDD

The HDD method is a trenchless installation technique used to install pipelines beneath the ground surface in areas where neither traditional open-cut excavations nor conventional bores are feasible due to sensitive resource areas or logistical reasons. This technique involves drilling a pilot bore, reaming the bore (with multiple passes) to a certain diameter, swabbing the bore to gauge the condition of the drilled bore, and pulling in a product pipe to complete the installation. Drilling fluids (consisting of water and bentonite) are pumped downhole during all phases of the installation process.

Controlling and managing the drilling fluid pressures are the keys to a successful HDD installation. When the soils encountered by an HDD installation provide sufficient strength to resist the required drilling fluid pressures, flow of drilling fluids occurs within the HDD bore created with the drilling tools. However, if the soils encountered by the HDD bore are not capable of providing sufficient strength to resist the required drilling fluid pressures, flow of drilling fluids within the HDD bore cannot be controlled or maintained, resulting in drilling fluid migration into the surrounding soils. Design of an HDD installation must consider the depth of cover beneath the critical feature, the entry and exit locations, the allowable bend radius, the anticipated geotechnical materials, and the setback distance from the critical feature. As such, HDD installations typically require longer installation lengths than other trenchless methods. This longer length increases the setback distance from the critical feature.

HDD installations are typically completed with entry angles between 10 and 15 degrees and exit angles between 8 and 12 degrees. The bending radius is typically 1,200 times the outer diameter (feet) of the product pipe. For a typical 36-inch pipeline, the bending radius would be 3,600 feet. Vertical curves are inherent to all HDD installations.

Workspace requirements include a launch/entry area of approximately 200 feet wide by 200 feet long to stage the necessary equipment. The exit area requires an approximate workspace area of 150 feet by 150 feet unless a drill and intersect approach is used. If this approach is used, a similar entry workspace is required at the exit location. The pipe string is staged on the opposite side of the HDD rig. A pipe staging area of 50 feet wide with a length equal to the HDD installation length is typically required to fully fabricate a preferred single pipe string. Where insufficient workspace exists, multiple pipe strings can be used as opposed to fabricating a single string. For these installations, the width of the pipe staging area typically needs to be increased by an additional 25 feet for each pipe string. Multiple pipe strings increase installation risks associated with prolonged stoppages to perform intermediate welds. For this reason, the number of pipe strings should be kept to a minimum.

Direct Pipe

The Direct Pipe installation method is a trenchless installation technique used to install pipelines beneath the ground surface in areas where neither traditional open-cut excavations nor other trenchless methods (HDD or conventional bore) are feasible due to sensitive resource areas or for logistical reasons.

Direct Pipe installation method involves using a pipe thruster to push a steel product pipeline with a microtunnel machine attached to the lead pipe from the entry location through to the exit location. The thruster is set up within a shallow shaft or on the ground surface at the entry location. As the microtunnel machine is pushed through the ground, the encountered geotechnical materials are consumed through the cutterhead of the machine and removed through the installed pipe using a closed-loop slurry system.

Water is pumped to the front of the machine where it entrains the produced cuttings to create a slurry that is then pumped back up to the ground surface for processing and removal. Bentonite is often added to the slurry system to help with processing and removal of the cuttings within the machine. The cutterhead at the front of the microtunnel machine excavates a larger bore diameter than that of the product pipe. Lubrication is pumped into this annular space to help reduce frictional forces acting on the pipe string. Water jets directed within the crushing chamber of the machine and cutterhead are often used to help process the encountered geotechnical materials within the crushing chamber, especially within cohesive soils.

Cutterheads, used to excavate the encountered geotechnical conditions, must be matched for the anticipated ground conditions along an alignment. Cutterheads used to excavate soils are not capable of excavating bedrock materials. Similarly, bedrock machines are not capable of excavating soil materials without great difficulty and high jacking forces. Mixed-face cutterheads, used to excavate soils containing some cobbles and/or boulders, do not work well within clayey soils or bedrock materials.

Direct Pipe allows for the direct installation of the product pipeline along an alignment that resembles an HDD installation. Curves are routinely completed for these installations, with a curve radius similar or slightly tighter to that used for HDD installations. Direct Pipe installations are conducted from a launch pit with entry angles typically between five (5) and 15 degrees. Alignments are typically designed similar to the requirements for an HDD installation but at a much shallower depth, as no drilling fluid is used to convey the excavated material outside of the pipe string. Unlike HDD installations, a return line slurry pump, located within the microtunnel boring machine, pumps the cuttings out of the machine and to the ground surface. As a result, the overlying soils are not required

to resist high drilling fluid pressures as they are for an HDD installation. This allows for shallower installation depths with this construction method.

Workspace requirements include a launch/entry area of approximately 150 feet wide by 200 feet long, to stage the necessary equipment and to allow for construction of a shallow launch pit. The exit area requires a workspace area of approximately 50 feet by 100 feet and a large crane to retrieve the microtunnel boring machine. The pipe string is staged on the same side as the thruster/launch pit. A pipe staging area of at least 75 feet wide by at least half of the installation length is typically required to fabricate the pipe strings and to stage the required slurry and lubrication and pipe handling equipment. This length is in addition to the staging area required for the launch pit. The width of the pipe staging area must be increased if multiple pipe strings are used for an installation.

Microtunneling

Microtunneling is similar to the Direct Pipe method with the following exceptions: deep shafts are used to launch and retrieve the microtunneling bore machine; curved alignments are not typically completed; lubrication is pumped through ports/holes drilled through the jacking pipe; and a two-pass installation strategy is required. The lubrication ports/holes within the jacking pipe do not allow for the direct install of the product pipe; hence, the jacking pipe must serve as a casing pipe to house the product pipe. The introduction of shafts further complicates construction as the product pipe must be fabricated within the shaft and pushed into the casing pipe one (1) joint at a time and inclined risers may be required to avoid vertical pipelines within each shaft. Pressure testing of the product pipe within the microtunnel installation cannot occur until after it is constructed, significantly complicating construction if issues were to arise. Because of these challenges associated with microtunneling, this method is not a preferred method of construction for natural gas pipelines.

Conventional Bore

Auger boring, often referred to as "jack and bore" or "conventional boring," involves jacking a casing pipe housing auger flights from a launch pit to a retrieval pit. A hydraulic unit located within the jacking pit thrusts the casing pipe forward as the auger flight is rotated to convey the encountered geotechnical material at the leading edge of the casing pipe back to launch pit. The leading auger flight is typically one (1) to two (2) pipe diameters inside the casing pipe. Operating the auger flights in this manner reduces risks associated with excessive excavation/flow of soil into the auger flight during advancement. Once brought back to the launch pit, a muck bucket/excavator is used to remove the spoil. When groundwater is present and highly permeable soils are anticipated, dewatering is often used to lower the water table to allow excavation under dry conditions and to reduce installation risks associated with unabated free-flowing water through the auger flights. In low permeable soils, the installation is typically completed with little to no dewatering. In bedrock installations, a special rock cutting head is attached to the casing pipe. Referred to as small boring units, these units are only capable of mining through very soft/weak bedrock materials.

The guided bore installation technique is a slight modification to the auger bore installation technique. It is identical to the auger bore installation methodology, with the addition of a new first step that involves pushing short 5-foot sections of drill rods from the launch pit through the ground surface to the retrieval pit. The auger equipment is then attached to the installed drill rods and pushed through the ground to completion. The benefit of the guided bore method is that it eliminates the line and grade inaccuracy associated with an auger bore installation. In addition, no material is removed during this phase of the work. Instead, the soil is displaced outwards as the drill rods are advanced.

Auger and guided bore installations are typically limited to installation lengths of 300 to 400 feet in soil; bedrock installations are typically shorter.

3.2.3.2 Conventional Wetland Construction Methods

In the absence of environmental or construction concerns requiring the use of other crossing methods, the conventional open-cut method is the most practicable for crossing wetlands and waterbodies.

Wetland construction methods will be conducted in accordance with the FERC *Upland Erosion Control, Revegetation, and Maintenance Plan* ("FERC *Plan*") and the FERC *Wetland and Waterbody Construction and Mitigation Procedures* ("FERC *Procedures*") (FERC, 2013a and 2013b). Construction methods across wetlands will differ depending upon site conditions, as described below.

Standard Wetland Construction (Non-Saturated)

The Standard Wetland Construction method is used where soils are non-saturated and able to support construction equipment at the time of crossing. This method requires segregation of topsoil from subsoil along the trenchline. Where present, a maximum of 12 inches of topsoil will be segregated from the area disturbed by trenching, except where soils are frozen, standing water is present, or soils are saturated or where shallow depth to bedrock exists. These exceptions will be identified in the field. Topsoil segregation is followed by trench excavation, pipe laying, backfilling, and grade restoration. Immediately after backfilling is complete, the segregated topsoil is restored to its original location. Erosion control measures, including site-specific contouring, silt fence, hay-bale barriers, permanent slope breakers, mulching, and reseeding or sodding with soil-holding vegetation, will be implemented. Contouring will be accomplished using acceptable excess soils from construction. Where this method is implemented for construction, the environmental inspector ("EI") will measure the pre- and post-construction soil density using a penetrometer to determine if the soil has been inadvertently compacted during construction or site access. If necessary, the soil will be loosened using a harrow, paraplow, paratill, or other equipment. Deep subsoil shattering, if necessary, will be performed with a subsoiler tool that has angled legs.

Conventional Wetland Construction (Saturated)

The Conventional Wetland Construction method is used for crossing wetlands with saturated soils or soils unable to support construction equipment without considerable soils disturbance. Prior to crossing and movement of construction equipment through these wetlands, the ROW will be stabilized using equipment mats to allow for stable, safe working conditions. Unless soils are inundated or saturated, a maximum of 12 inches of topsoil will be segregated from the area disturbed by trenching. Trench spoil will be stockpiled temporarily in a ridge along the pipeline trench. Gaps in the spoil pile will be left at appropriate intervals to maintain circulation or drainage of water.

The pipeline will be assembled in a staging area located in an upland area. In accordance with the FERC *Procedures*, the pipeline will be assembled prior to commencing trenching activities. The pipe will then be moved from the assembly area to the ROW. After the pipeline is lowered into the trench, wide track bulldozers or backhoes supported on equipment mats will be used for backfilling, final cleanup, and grading. The method will minimize the amount of equipment and travel in wetland areas.

Push-Pull Technique/Float Technique

Construction in saturated/inundated wetland areas may involve the Push-Pull also known as the Float Technique. The Push-Pull Technique is used in large wetland areas (greater than 300 feet crossing

length) where sufficient water is present for floating the pipeline in the trench, and grade elevation over the length of the push-pull area will not require damming to maintain adequate water levels for flotation of the pipe. If dry conditions prevail, the push-pull method is not viable. This method involves pushing the prefabricated pipe from the edge of the wetland or pulling the pipe with a winch from the opposite bank of the wetland into the trench. For implementation of this technique, initial clearing within the wetland is minimized, and the width of the ROW cleared is limited to only that necessary to install the pipeline. Grading in inundated wetlands is generally unnecessary due to the typically level topography and the absence of rock outcrops in such areas; if required, grading will be held to a minimum.

Equipment mats may be placed over existing vegetation where grading is not required. Trees and brush will be cut to ground level by hand, with low ground pressure equipment, or with equipment supported by equipment mats.

The trench will be excavated using amphibious excavators (pontoon mounted backhoes) or tracked backhoes (supported by fabricated equipment mats or floats). The excavated material will be stored adjacent to the trench, if possible. If storage of excavated material next to the trench is not possible (i.e., workspace limitations, safety concerns), the material will be stored temporarily in one (1) of the following locations: in upland areas of the ROW as near to the trench as possible, in construction vehicles, or at an approved off-site staging location until needed for backfilling. The pipe will be stored and joined at staging areas (push and pull sites) located outside of the wetland. Floats may be attached temporarily to give the pipe positive buoyancy. After floating the pipe, these floats will be cut, and the negative buoyant pipe will settle to the bottom of the ditch. This operation (pipe sections fabricated, welded together, and pushed into place) is repeated until the wetland crossing is complete. The excavated material will then be placed over the pipe to backfill the trench.

3.2.4 Best Management Practices for Wetland Crossings

To minimize the potential for adverse effects to wetlands, PennEast will implement the following best management practices ("BMPs") outlined in the Erosion and Sediment Control Plan ("E&SCP") (Appendix B-1 and B-2) when conducting pipeline installation activities:

- PennEast will minimize vegetation clearing where feasible and stumps that do not interfere with travel or installation of the pipeline will be left in place to allow for re-sprouting following construction and restoration;
- PennEast will use construction mats in all wetlands to minimize impacts to the soil profile and reduce compaction in the travel lane;
- The excavation procedures used to cross unsaturated wetlands will be similar to those used in uplands;
- PennEast will segregate topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated;
- PennEast will install temporary trench plugs at the edges of wetlands, as necessary, to prevent the flow of upland sediments or other potential pollutants into wetlands during construction;
- PennEast will install permanent trench plugs at the edges of wetlands before the trench is backfilled to restore hydrology to preconstruction conditions;
- PennEast will install compost filter socks across and along the edge of the construction ROW, where indicated on the approved E&SCP and wherever necessary, to minimize the flow of sediment into wetlands; and

- PennEast will maintain a minimum 100-foot buffer from wetlands to refuel vehicles, store or transfer liquid hazardous materials, and field coat pipeline segments with concrete unless otherwise approved by the EI and unless secondary containment is implemented.

3.2.5 Wetland Restoration

Restoration of the natural hydrology, soil profiles, and topography is critical to promote natural regeneration and to maintain a successful wetland ecological community. Where the original contours are reestablished within a ROW and no other impediments to the natural hydrology occur, natural revegetation of a ROW that is adjacent to an unaffected wetland plant community will usually occur within one (1) or two (2) growing seasons in PEM and PSS wetlands. Restoration activities in wetlands will be conducted in accordance with PennEast's approved E&SCP, unless federal or state agencies require an alternative method. PennEast will use the following criteria to restore disturbed wetland areas to as close to their pre-construction condition as practical:

- All equipment mats, temporary timber bridges, and other construction debris will be removed during the final grading of the ROW. Once backfilling is complete, segregated topsoil will be returned to affected locations, and the original surface contours and flow regimes will be restored;
- During final grading, wetlands (including areas within 100 feet of wetlands) will be restored to their pre-construction contours and the buffer areas seeded and mulched as soon after backfilling as practicable with the exception of the travel portion of the ROW, which will also be restored using these procedures after the travel way is no longer required;
- For each wetland crossed, trench plugs will be installed at the base of slopes near the boundary between the wetland and adjacent upland areas, and the trench bottom will be sealed as necessary to maintain the original wetland hydrology in areas where the pipeline trench may affect the groundwater hydrology;
- Permanent slope breakers will be installed across the construction ROW at the base of slopes in accordance with the E&SCP to prevent sediment transport into the wetland;
- Sediment barriers will be installed as outlined in the E&SCP and as approved or specified by the EI;
- In accordance with the procedures outlined in the E&SCP, wetlands will be seeded with a wetland conservation seed mix unless standing water is present;
- No fertilizers, lime, or mulch will be used in wetland areas unless required in writing by applicable regulatory agencies;
- Within the temporary workspace and outside of the 30-foot maintained ROW, PFO and PSS wetlands will be planted with native woody plants that are adapted to wetland conditions; and
- After construction, disturbed wetlands and adjacent uplands will be monitored as required by state and federal permit conditions (annually for at least five [5] years) to document long-term stabilization. Regular inspection and maintenance of erosion control measures will expedite successful restoration of the wetlands.

3.2.6 Wetland Mitigation

PennEast has developed a Wetland and Riparian Reforestation Plan (Appendix D), which outlines the on-site restoration that is proposed at each wetland and riparian crossing. After each crossing is

constructed, PennEast will restore pre-construction contours before seeding the areas with a conservation wetland seed mix (Ernst FACW Meadow Mix, ERNMX-122) and a riparian seed mix (Ernst Riparian Buffer Mix, ERNMX-178), respectively. In riparian buffers where slope exceeds 10 percent (%), PennEast's Standard Upland ROW mix will be used. Overlapping the seeded areas, PennEast proposes to replant trees and shrubs within forested riparian buffers and PFO and PSS wetlands, with the exception of a 30-foot-wide corridor that is centered on the pipeline. The trees and shrubs will be planted at approximate 10-foot centers. This 30-foot-wide ROW will be maintained periodically during Project operation, and to maintain the integrity of the pipeline coating, trees greater than 20 feet tall or 3 inches diameter at breast height will be removed. The proposed woody plantings and conservation seed mixes are outlined in Table 1 of the Wetland and Riparian Reforestation Plan. The trees will be protected from herbivory using spiral tree wraps, and 24-inch diameter coconut coir fiber mats will be installed around each planted tree to protect plants from weeds and frost. PennEast will monitor survivorship for five (5) years. If survivorship is below 75 percent (%) within a restored wetland or riparian area, PennEast will discuss remediation measures with the PADEP and USACE.

No net loss to wetlands or waterbodies will occur within the pipeline ROW as PennEast will restore all impacted wetlands within the pipeline ROW to pre-construction contours and will restore natural flow conditions to all affected waterbodies. Approximately 0.036 acres of PEM wetlands and 0.024 acre of PFO wetland mosaic will be filled to construct and operate the Kidder Compressor Station in Carbon County. Permanent wetland impacts within the pipeline corridor will be associated with the conversion of PFO and PSS wetlands to PSS and PEM wetlands and will be limited to a 30-foot-wide maintenance corridor within the permanent ROW. Within the DRB, operation of Phase 1 of the Project will result in the conversion of approximately 5.49 acres of PFO and PSS wetlands to PEM and PSS wetlands within the 30-foot-wide maintained ROW. PennEast proposes off-site compensatory mitigation in the form of wetland enhancement to compensate for the permanent impacts to wetland cover types. The proposed mitigation ratios are based on the type of conversion that is proposed (i.e., the frequency of ROW maintenance that will result in either PEM or PSS wetlands) and the wetland classification. The Compensatory Wetland Mitigation Plan is provided in Appendix E and further described in Section 4.2.5 below.

3.3 Waterbody Impacts within the DRB

As described in Section 2.2, the proposed Project will be constructed in compliance with applicable federal regulations and guidelines, and the Project-specific permit conditions. Construction of the Project will commence after ROW and applicable regulatory permits and clearances have been acquired for the Project. Construction of the Project will involve temporary impacts to regulated waterbodies within the pipeline ROW. This section summarizes the waterbodies identified within the proposed Phase 1 Project footprint within the DRB, PennEast's efforts to avoid and minimize waterbody impacts, and proposed construction techniques.

3.3.1 Waterbody Identification

Waterbodies include any natural or artificial waterbody, river, or drainage with perceptible flow at the time of crossing and other permanent waterbodies such as ponds and lakes. To identify and delineate waterbodies, an on-site evaluation was performed based on whether the feature exhibited typical waterbody characteristics such as a defined streambed and streambanks, an exclusion of terrestrial vegetation, hydrologically sorted substrate material, and the presence of an ordinary high water mark. These waterbodies were identified and classified as regulated under the CWA as Waters of the United

States and The Pennsylvania Code, Title 25 and Chapter 105, as Regulated Waters of the Commonwealth (Commonwealth of Pennsylvania, 2018a and 2018b).

Waterbody types include perennial, intermittent, and ephemeral. Waterbody type determinations were made based on channel definition (i.e., having a defined bed and bank) and by determination of waterbody flow at the time of survey using geomorphic, hydrological and biological indicators. The North Carolina Division of Water Quality ("NCDWQ") identification methods were used as guidelines (NCDWQ, 2010). Perennial waterbodies are described in the NCDWQ methods as a "well-defined channel that contains water year-round during a year of normal rainfall with the aquatic bed located below the water table for most of the year." Intermittent waterbodies are defined as "a well-defined channel that contains water for only part of the year, typically during winter and spring when the aquatic bed is below the water table." Ephemeral waterbodies are described as "a feature that carries only stormwater in direct response to precipitation with water flowing only during and shortly after large precipitation events."

Table 3-4 provides a summary of waterbodies that will be impacted by Phase 1 of the Project, by facility and flow type within the DRB. A complete list of individual waterbodies crossed by Phase 1 of the Project within the DRB can be found within Appendix F. Impacts to waterbodies impacted by construction of Phase 1 of the Project have been submitted to the USACE and PADEP as part of the CWA Section 401 WQC and Section 404 permit review process. Mapping depicting the location of the Phase 1 facilities as well as the waterbodies crossed by the Project can be found in Appendix A-2.

Table 3-4
Summary of Waterbodies Crossed by the Phase 1 Pipeline Facilities within the DRB[1]

Facility	Perennial Waterbody Crossing[1]	Intermittent Waterbody Crossing	Ephemeral Waterbody Crossing[2]	Total
PennEast Mainline Pipeline	50	25	13	88
Blue Mountain Lateral	2		1	3
Kidder Compressor Station	1	-	-	1
Access Roads	4	1	-	5

Notes:

1. Includes lakes crossings.
2. Includes ditches.

3.3.2 Waterbody Crossing Methods Proposed for the Project

PennEast evaluated each waterbody crossing location to determine whether conventional open-cut or trenchless construction techniques would be the most suitable crossing method. The criteria that were considered in determining the most appropriate crossing method included:

- Geologic conditions;
- Topographic conditions;
- Available workspace; and
- Practicality.

3.3.2.1 Trenchless Construction Methods

The trenchless construction methods are described in Section 3.2.3.1 above.

3.3.2.2 Conventional Waterbody Construction Methods

Various methods are available to install the pipeline across waterbodies, depending on waterbody classification and flow conditions at the time of crossing. PennEast anticipates that most waterbody crossings will be completed within 24 to 48 hours.

Dam and Pump

The dam and pump crossing method involves constructing temporary sand or pea gravel bag dams upstream and downstream of the proposed crossing site while using a high capacity pump to divert water from the upstream side of the construction area to the downstream side. Energy dissipation devices, such as steel plates, placed on the downstream side at the discharge point will prevent streambed scour.

After installing the dams and commencing pumping, a portable pump (separate from pumping the stream flow around the construction area) may be used to pump standing water from between the dams into a dewatering structure consisting of straw bales/silt fence or into a filter bag located away from the stream banks, thereby creating a dry construction area.

Once the area between the dams is stable, backhoes located on one (1) or both banks would excavate a trench across the stream. Spoil excavated from the trench may be stored in the dry streambed adjacent to the trench if the stream crossing is major or in a straw bale/silt fence containment area located a minimum of 10 feet from the edge of the stream banks. Leakage from the dam, or subsurface flow from below the streambed, may cause water to accumulate in the trench. As water accumulates in the trench, it will be periodically pumped out and discharged into a dewatering structure located away from the stream banks.

After trenching across the streambed is completed, a prefabricated segment of pipe is installed in the trench. The streambed portion of the trench is immediately backfilled with streambed spoil. Once restoration of the streambed is complete, the dams are removed, and normal flow is re-established in the stream.

Flume Crossing

The flume crossing method involves diverting the flow of the stream across the construction site through one (1) or more flume pipes placed in the stream. The first step in the flume crossing method involves placing a sufficient number of adequately sized flume pipes in the stream to accommodate the highest anticipated flow during construction. After placing the pipes in the stream, sand or pea gravel bags would be placed in the stream upstream and downstream of the proposed trench. The bags serve to dam the stream and divert the stream flow through the flume pipes, thereby isolating the stream flow from the construction area.

Backhoes located on one (1) or both banks of the stream would excavate a trench under the flume pipe in the isolated streambed. Spoil excavated from the stream trench would be placed or stored a minimum of 10 feet from the edge of the waterbody or in additional temporary workspace as necessary. Once the trench is excavated, a prefabricated segment of pipe would be installed beneath the flume pipes. The

trench is then backfilled with native spoil from the streambed. Clean gravel or native cobbles would be used to backfill the top 12 inches of the trench in coldwater fisheries.

If trench dewatering is necessary near waterbodies, the trench water would be discharged into an energy dissipation/sediment filtration device, such as geotextile filter bag or straw bale structure, away from the water's edge, preferably in a well-vegetated upland area to prevent heavily silt-laden water from flowing into the waterbody.

Cofferdam

A cofferdam is a temporary structure built into a waterbody to contain or divert movement of water and to provide a reasonably dry waterbody crossing construction area. Cofferdams are commonly made of steel sheet pile, rock, gabions, concrete jersey barriers, vinyl tubes filled with water, or wood and may be lined with geotextile, plastic sheeting, or other materials to prevent water from entering the construction area. The advantages of the use of cofferdams include maintaining flow of the waterbody with phased construction approaches, minimal subsurface impacts, and short installation and breakdown times.

A typical cofferdam crossing will have two (2) phases. Each of the phases will be conducted from opposite stream banks. Each phase will consist of placing sandbags or other equivalent cofferdam materials such that a portion of the waterbody to be crossed can be blocked from upstream and downstream water flow while at least one third of the total crossing width remains open to water flow. The area within the cofferdam area will be dewatered and pipeline work construction will be carried out in the dry. After completion of one (1) bank, the same configuration will be used from the other bank to complete a continuous pipeline crossing through the waterbody.

- Cofferdams will be constructed with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner); and
- Cofferdam and dewatering pumps will be monitored to ensure proper operation throughout the waterbody crossing.

Dry Open-Cut Crossing

The open-cut construction method involves the excavation of the pipeline trench across the waterbody, installation of a prefabricated pipeline segment, and backfilling of the trench with excavated material. The work is performed under dry conditions, either during periods of no flow or when the waterbody is frozen. Depending upon the width of the crossing and the reach of the excavating equipment, excavation and backfilling of the trench would generally be accomplished using backhoes or other excavation equipment operating from one (1) or both banks of the waterbody. Excavated material from the trench would be placed on the bank above the ordinary high water mark for use as backfill. The pipe segment can be weighted, as necessary to provide negative buoyancy, and placed below scour depth. Typical backfill cover requirements would be met, contours would be restored within the waterbody, and the banks would be stabilized via seeding and/or the installation of erosion control matting or approved alternative, per applicable agency approvals. One of the goals of dry open-cut crossings is to complete all in-stream construction (trenching, pipe installation, backfill, and streambed restoration) within 48 hours.

3.3.3 Best Management Practices for Waterbody Crossings

To minimize the potential for adverse effects to waterbodies, PennEast will implement the following BMPs outlined in the E&SCP when conducting pipeline installation activities:

- PennEast proposes to cross all waterbodies with discernible flow at the time of construction with a dry-crossing technique, except where specific conditions render a dry crossing infeasible;
- PennEast will install compost filter socks across and along the edge of the construction ROW, where indicated on the approved E&SCP and wherever necessary, to minimize the flow of sediment into waterbodies;
- PennEast will construct a temporary equipment bridge over each stream to minimize direct impacts from equipment travel;
- PennEast will minimize waterbody impacts using the dam and pump, flumed, or cofferdam crossing techniques, which will prevent stream flow over an open trench;
- Stream flow will be restored after the banks have been stabilized;
- Across minor waterbodies, or those less than 10 feet wide from top of bank ("TOB") to TOB, PennEast will install the pipe and restore the stream banks within 24 hours of trenching;
- For intermediate waterbodies (those streams between 10 feet and 100 feet wide from TOB to TOB), PennEast will construct the crossing and restore the stream banks within 48 hours;
- PennEast will install temporary trench plugs at the edges of waterbodies to prevent the flow of upland sediments or other potential pollutants into waterbodies during construction;
- PennEast will install permanent trench plugs at the edges of waterbodies before the trench is backfilled to restore the hydrology to preconstruction conditions;
- Erosion control fabric will be installed within 50 feet of each waterbody, and within 100 feet of high quality or exceptional value ("EV") waterbodies to help stabilize the soil until permanent vegetative cover is achieved;
- PennEast will maintain a minimum 100-foot buffer from waterbodies to refuel vehicles, store or transfer liquid hazardous materials, and field coat pipeline segments with concrete unless otherwise approved by the EI and unless secondary containment is implemented; and
- To protect trout populations, PennEast will complete in-stream construction activities outside of the March 1 to June 15 window for trout-stocked streams, outside of the October 1 to December 31 window for wild (naturally reproducing) trout streams, and outside of the October 1 to April 1 window for Class A wild trout streams unless otherwise approved by the PFBC.

3.3.4 Waterbody Restoration

PennEast will use the following criteria to restore disturbed waterbodies to as close to their pre-construction condition as practical:

- Clean stone or native cobbles will be used for the upper 1-foot of trench backfill in waterbodies that contain cold water fisheries.
- Waterbody banks will be returned to pre-construction contours or to a stable angle of repose as approved by the applicable regulatory agencies;
- Use of alternative materials for bank stabilization will comply with applicable regulatory agency approvals. In general, PennEast, to the extent practical, will employ natural stream bank restoration techniques detailed in the E&SCP before using approved alternative stabilization. The use of approved alternatives will generally be limited to areas where flow

conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric;
- Disturbed riparian areas will be revegetated in accordance with the Wetland and Riparian Reforestation Plan;
- Permanent slope breakers will be installed across the construction ROW at the base of slopes as described in the E&SCP, or as needed to prevent sediment transport into the waterbody; and
- Sediment barriers will be installed as outlined in the E&SCP and as approved or specified by the EI.

3.4 Groundwater Impacts within the DRB

The Project is not anticipated to have significant impacts on groundwater quality or supply. PennEast proposes to implement BMPs designed to avoid, reduce, and/or mitigate potential impacts on groundwater during construction and operation as detailed in the E&SCP. PennEast will adhere to practices related to groundwater protection, including specifications for trench plugs and dewatering and restrictions on refueling and storage of hazardous substances.

Construction activities that could affect groundwater include clearing of vegetation, dewatering of the trench and bore pits, soil mixing and compaction, fuel handling, and blasting. Impacts could include changes in the volume and rate of groundwater infiltration, groundwater contamination, and alteration of groundwater flow and well yields. Clearing and grading of the ROW and construction workspaces would remove vegetation that could act as a filter for groundwater recharge and/or rate of recharge. In accordance with PennEast's E&SCP, vegetation would only be cleared where necessary and would be allowed to re-vegetate once construction was complete. Excavation would typically occur at depths that are shallower than the aquifers in the Project area; thus, excavation is not expected to affect groundwater. Impacts from trench dewatering, including changes in the volume or rate of groundwater infiltration, would be short term and temporary. Soil mixing and compaction during construction could change the volume or rate of groundwater infiltration. PennEast will implement measures identified in its E&SCP, such as using equipment mats in areas of saturated soils, to minimize impacts. PennEast will de-compact soils compacted by pipeline construction activities prior to completion of restoration and revegetation.

Groundwater contamination could occur in the unlikely event of an inadvertent spill of fuel or hazardous liquids during refueling or maintenance of construction equipment, or during operation of aboveground facilities. PennEast will store and handle hazardous liquids according to its E&SCP to minimize potential spills. In addition, PennEast will implement the procedures in its Preparedness, Prevention, and Contingency ("PPC") Plan in the event of an inadvertent release of hazardous materials to prevent groundwater contamination. The Preparedness, Prevention, and Contingency Plan ("PPC Plan") is further described in Section 4.2.1 below and included in Appendix G.

PennEast proposes two (2) HDDs associated with Phase 1 of the Project within the DRB. The HDD locations are noted in Table 3-5, and HDD exhibits are provided in Appendix B-2. HDD operations have a potential to release drilling fluids into the surface environment through inadvertent returns. An inadvertent return is the condition where drilling mud travels through the overlying soils or bedrock formations towards the ground surface as opposed to traveling through the HDD bore. Because drilling muds consist largely of a bentonite clay-water mixture, they are not classified as toxic or hazardous substances. However, if released into waterbodies, bentonite has the potential to adversely impact fish and invertebrates. To minimize the potential for an inadvertent return and to protect the environmentally

sensitive riverbed and associated riparian vegetation, PennEast developed an HDD Inadvertent Returns and Contingency Plan, which is further discussed in Section 4.2.3 and included in Appendix H.

Table 3-5
HDDs in Phase 1 within the DRB

Location/Feature	County	Begin MP[1]	End MP[1]	Length (feet)[2]	HDD Exhibit No.[3]
Interstate 80	Carbon	26.8R2	27.6R2	3,824	000-03-07-013
Wild Creek & Pohopoco Creek (Beltzville Lake)	Carbon	43.2R3	44.4R3	6,100	000-03-07-002

[1] Begin/End MPs are at the approximate locations of HDD entry/exit points.

[2] Lengths are approximate and subject to field verification.

[3] For more information refer to the HDD Exhibit Plan and Profiles in Appendix B-2.

3.5 FEMA Flood Zones Crossed by Phase 1 of the Project within the DRB

PennEast assessed the Flood Insurance Rate Maps issued by the Federal Emergency Management Agency ("FEMA") to identify crossings of areas subject to flooding and high-volume flows (identified as Special Flood Hazard Areas ["SFHA"], FEMA, 2018). FEMA SFHAs are areas located within the 100-year floodplain. Project figures contained within Appendix A-3 show the FEMA 100-year floodplains crossed by the Phase 1 pipeline facilities within the limits of the DRB and Table 3-6 provides a summary of the FEMA Flood Zones crossed by the Phase 1 pipeline facilities within the DRB. There are no proposed aboveground facilities or permanent access roads located within a designated FEMA SFHA.

Table 3-6
Summary of FEMA Flood Zones Crossed by the Phase 1 Pipeline Facilities within the DRB

Facility	FEMA SFHA		
	Linear Miles	Acreage within Temporary Workspace	Acreage within Permanent ROW[1]
PennEast Mainline Pipeline	0.5	1.1	1.9[2]
Blue Mountain Lateral	0.0	0.0	0.0
Kidder Compressor Station	-	0.0	0.0
Access Roads	0.7	0.9	0.5[3]

[1] Permanent ROW includes 50-ft permanent easement, permanent aboveground facilities, and permanent access roads.

[2] Floodplain impacts within the permanent ROW will be temporary

[3] Existing access road will be used for permanent access to the Blue Mountain Interconnect. No improvements are necessary.

PennEast will implement BMPs applicable to floodplains including the control of erosion and sedimentation through installation of structural erosion and sedimentation facilities within and at the limits of the Project workspace. BMPs have been designed in accordance with Pennsylvania agency

erosion control standards, including specifications for flooding frequency and volume. Additionally, the amount of vegetation cleared during construction will be limited to the removal of the minimum amount necessary for safe construction. PennEast will make every effort to expedite construction when working in floodway locations and will remove equipment and construction materials immediately following restoration of the workspace. During construction, PennEast will monitor the local weather forecast and waterbody flow conditions and will implement the necessary measures such as the removal or securing of construction materials or equipment in the event a high-water event is anticipated.

PennEast will use secondary containment when operating pumps in floodway locations, and hazardous materials, including chemicals, fuels, and lubricating oils, will not be stored within 100 feet of a waterbody boundary.

PennEast will restore and revegetate temporary workspace areas to minimize or avoid permanent impacts on vegetated floodplain areas. Restoration and revegetation will comply with state and federal regulations and monitoring requirements. The construction workspace will be restored to preconstruction contours after construction and is not anticipated to result in increased flood elevations or encroachment within floodways.

To protect the integrity of the pipeline during flood events, the Project facilities have been designed, and will be constructed, tested, operated, and maintained, to conform with applicable federal, including United States Department of Transportation ("USDOT") regulations at 49 CFR Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards" and Commission regulations at 18 CFR Section 380.15, "Siting and Maintenance Requirements." The pipeline system will include many pipeline design and equipment features, in addition to routine inspection and maintenance programs, to increase the overall safety of the system and protect the public from system failures due to natural catastrophes, such as severe flooding. Some of the measures include, but are not limited to, coating the pipeline with concrete to prevent it from floating in specific wetland and waterbody locations and maintaining a minimum cover depth of 5 feet at waterbody crossing locations.

3.6 Special Land Uses Crossed by Phase 1 of the Project within the DRB

PennEast identified public land, reservoirs, recreation areas, conservation areas, and other areas designated as having a special land use that are crossed by or located within the vicinity Phase 1 alignment. These areas were identified by reviewing publicly available websites and databases of federal, state, and local agencies; public websites; and other sources of publicly available information. Additional information was obtained for these areas through consultations with the relevant federal, state, or local agencies; reviewing aerial photographs and maps of the alignment area; a title search of lands crossed by the Phase 1 facilities; and through field surveys. A detailed list indicating the acres of temporary workspace and new permanent ROW within national and state non-urban recreational areas, as defined in Section III of the DRBC's July 2001 Comprehensive Plan (DRBC, 2001), that are crossed by Phase 1 of the Project is provided in Table 3-7 below.

Table 3-7
National and State Non-Urban Recreational Areas Crossed by Phase 1 of the Project

Location	Acres within the Temporary Workspace	Acres within the Permanent ROW	Acreage within the 30-foot Maintained ROW
Frances E. Walter Reservoir	1.4	1.1	0.8
Hickory Run State Park	19.4	12.6	12.6
Weiser State Forest	3.9	2.7	2.5
Beltzville State Park	0.8	6.4	3.8
Beltzville Reservoir	0.0	0.7	0.4

3.7 Use of Surface Water or Groundwater Resources by Phase 1 of the Project within the DRB

In compliance with USDOT specifications, PennEast will conduct hydrostatic testing on all pipeline segments prior to placing them in service. PennEast will follow the hydrostatic testing procedures identified in Section 7 of the FERC *Procedures*, which include permitting, notification, withdrawal, testing, and discharge BMPs. PennEast will source water for hydrostatic testing, HDD activities, and dust suppression from approved sources (e.g., commercial and municipal suppliers), and no chemicals will be added to hydrostatic test waters. Hydrostatic test water will not be discharged or used for dust suppression; all used hydrostatic test water and water used for HDD activities will be removed from the site and disposed of at approved water treatment facilities.

4.0 PHASE 1 CONSISTENCY WITH DRBC REQUIREMENTS

The following sections provide a summary of the measures to be implemented by PennEast to avoid, minimize, or mitigate for the impacts anticipated for Phase 1 of the Project. Items reviewed include stormwater management methods, dust control, invasive species management, and water quality. This information is followed by sections that review the requirements of DRBC's Water Quality Regulations, Floodplain Regulations, and Comprehensive Plan and provide an assessment of how the construction and long-term maintenance of the Phase 1 facilities proposed by PennEast are consistent with these requirements.

4.1 Stormwater Management

Direct disturbances to the soils within any of the land use categories during construction and operation of Phase 1 of the Project will be minimized through implementation of the E&SCP (Appendix B-1 through B-3), Site Restoration Plan (Appendix B-4 and B-5), and Post-Construction Stormwater Management Plans ("PCSM Plans") (Appendix B-6) for aboveground facilities. The E&SCP contains industry-specific BMPs for standard cross-country pipeline installation in typical areas, as well as location-specific specialized BMPs for the crossing of sensitive areas such as wetlands, waterbodies, steep terrain and agricultural locations. The E&SCP, Site Restoration Plan, and PCSM Plans are components of the ESCGP application that has been developed to document the means and methods that will be implemented during and after construction to address stormwater flow across the Project

site. Specific focus of the ESCGP permitting process is to illustrate how stormwater quantity (volume) will be managed and stormwater runoff quality will be maintained. The ESCGP permit application must be reviewed and approved by County Conservation Districts and by the PADEP before construction can commence. The E&SCP, Site Restoration Plan, and PCSM Plans are currently under PADEP and County Conservation District technical review.

4.1.1 Erosion and Sediment Control

PennEast has developed a project-specific E&SCP to offset temporary impacts to surface locations during construction of the Phase 1 of the Project. The E&SCP describes the basic environmental construction techniques that will be implemented to protect the environment and to minimize potential effects of the Project construction and maintenance. PennEast has based the specifications in the E&SCP on procedures successfully used in constructing, operating and maintaining pipeline transmission systems throughout the northeastern United States, the PADEP's *Erosion and Sediment Control Program Manual* (March 2012), and on guidelines and recommendations from the USACE, the U.S. Department of Agriculture, the Natural Resources Conservation Service ("NRCS"), and the FERC. This E&SCP meets the conditions outlined in the FERC *Plan and Procedures* except in areas where PennEast has documented exceptions from specific conditions as outlined in PennEast's FERC Certificate application.

Temporary impacts to disturbed surface locations along the pipeline ROW will be mitigated for via use of the Project-specific E&SCP. This plan emphasizes the use of standard erosion control techniques designed to reduce potential short-term and long-term impacts on soil and water resources including, but not limited to, the following:

- The installation of temporary and permanent slope breakers;
- The use of permanent trench plugs;
- The installation of temporary sediment barriers (e.g., hay bales, siltation fence or compost filter socks);
- The use of temporary drainage swales and check dams;
- The use of temporary and permanent seeding as an erosion control cover;
- The distribution of straw mulch as a temporary erosion control cover;
- The use of erosion control matting along steep slopes and riparian corridors;
- The placement of equipment bridges and mats for the temporary crossing of wetlands and waterbodies;
- The use of water as a dust suppressant;
- The installation of rock construction entrances to minimize sediment transport on to roadways;
- The segregation of topsoil in wetlands, agricultural areas, and residential lands;
- The revegetation of the disturbed ROW; and
- The adherence to the applicable seasonal timing restrictions to minimize impacts to sensitive aquatic and terrestrial resource areas.

The E&SCP addresses temporary thermal impacts that may occur as a result of increased ground surface temperatures from the removal of vegetation and the reduction in thermal buffering due to vegetation clearing activities along waterbodies and floodplain corridors that intersect the ROW. To offset these impacts, PennEast will limit clearing at waterbody crossings such that riparian buffers and canopy cover over surface waters are maintained to the maximum extent practicable. In accordance with the FERC *Procedures*, PennEast will maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction ROW, except where maintaining this offset will result in greater environmental impact. PennEast has incorporated BMPs into the Project design that avoids direct discharges of stormwater runoff to surface waters, thus reducing the potential for increased waterbody temperatures due to a reduction in groundwater infiltration. Runoff discharges will be directed off the construction ROW across well vegetated areas, which will provide opportunity for increased infiltration and promote groundwater recharge, which both promote natural thermal buffering. Disturbed ROW locations will be restored and permanently revegetated shortly after installation of the pipeline facilities as described in the Project E&SCP. Through revegetation of the ROW thermal impacts will be limited to short-term occurrences associated with the construction phase of the pipeline installation, and therefore no long-term effects to surface water temperatures would occur.

4.1.2 Site Restoration

Cleanup and restoration of Phase 1 pipeline ROW locations will be conducted in accordance with the procedures outlined in the Site Restoration Plan (Appendix B-4 and B-5). For pipeline construction, the approximate original contours of the workspace will be maintained and/or restored to their original condition following construction, and disturbed areas will be re-vegetated or restored with pervious material. Existing drainage patterns will be maintained, and the volume and rate of stormwater runoff from the Project area in the post-construction condition are not expected to exceed that of the existing condition. Within uplands, permanent impacts resulting from Phase 1 of the Project will be limited to the conversion of forested locations within the 30-foot-wide, maintained pipeline ROW to successional field communities (i.e., open lands) and permanent vegetation clearing and maintenance at the Kidder Compressor Station and Blue Mountain Interconnect. There will be no forest impacts associated with the Church Road Interconnects.

4.1.3 Post-Construction Stormwater Management

PennEast has prepared PCSM Plans (Appendix B-6) for aboveground facilities that will result in an increase in impervious surfaces (buildings, pavement, or gravel). The PCSM Plans have been designed to eliminate the net change in stormwater volume, rate, and quality for stormwater events up to and including the two- (2-) year/24-hour storm. Various structural and non-structural BMPs will be used to meet water quantity and quality requirements.

4.2 Water Quality

As discussed in Section 3.2 and 3.3, PennEast has prioritized the avoidance and minimization of impacts to water resources throughout the development of Phase 1 of the Project. Temporary unavoidable impacts to water resources within the DRB during construction activities include trench excavation through wetlands and waterbodies and the minimal fluctuations in local surface elevations and water tables that may occur during trench dewatering activities. Impacts associated with these activities will

be minimized through implementation of the erosion and sedimentation control BMPs that are provided in the E&SCP and adherence to the FERC *Plan* and *Procedures*.

In addition to the E&SCP, PennEast has developed several plans that will be implemented during Project construction and operation to further mitigate water quality impacts. These plans are discussed below.

4.2.1 Preparedness, Prevention, and Contingency Plan

PennEast has developed a PPC Plan and Unanticipated Discovery of Contamination Plan to prevent the release of hazardous materials as well as to specify the actions that will be taken should any spills occur during construction of Phase 1 of the Project. This PPC Plan details the necessary spill response and prevention measures that Project personnel will be subject to including contractor training, emergency notification procedures, equipment inspection protocols, refueling limitations, and policies on the storage of hazardous materials. Additional details on the construction techniques and measures that will be employed are provided in the PPC Plan located in Appendix G.

4.2.2 Well Monitoring Plan

PennEast has developed a Well Monitoring Plan (Appendix I) to monitor water quality and public/private supply well yields of existing wells before and after construction to determine whether water supplies have been affected by the Project construction activities. The Well Monitoring Plan identifies protocols and outlines procedures for pre- and post-construction monitoring of wells and springs within 150 feet (500 feet within karst terrain) of the construction workspace. The information collected will be used to document the water supply's conditions before the pipeline work begins and after the Project is complete. In the event of damage or contamination, PennEast would mitigate damage associated with the Project construction, including possible installation of a new well, arranging for temporary potable water supplies, and conducting restoration, repair or replacement of water supplies. The Well Monitoring Plan will be submitted to FERC for review and approval before construction begins in accordance with environmental conditions of FERC's Order Issuing Certificates of Public Convenience and Necessity for the Project (*PennEast Pipeline Co., LLC*, 162 FERC ¶ 61,053 (2018) as amended on March 19, 2020 ["Certificate Order"]).

4.2.3 HDD Inadvertent Return and Contingency Plan

PennEast's HDD Inadvertent Return and Contingency Plan (Appendix H) provides procedures to facilitate the expeditious detection of inadvertent returns, and steps to ensure an organized, timely, "minimum-impact" response in the event of an inadvertent return and release of drilling bentonite. This plan summarizes the responsibilities of the Site Supervisor/Foreman, who has overall responsibility for implementing the Plan. Crew members must be properly trained and familiar with spill procedures. The Drilling Contractor will be familiar with procedures and equipment that will be used for controlling/responding to inadvertent returns. A leak-stopping compound shall be selected by the Drilling Contractor and approved by PennEast prior to bringing it to the site. The response of the field crew to an inadvertent return shall be immediate and in accordance with procedures identified in the Plan. All appropriate emergency actions that do not pose additional threats to sensitive resources will be taken. Agency and stakeholder notification procedures are outlined in the HDD Inadvertent Return and Contingency Plan, and the Drilling Contractor may not restart drilling activities without approval from PADEP and PennEast.

4.2.4 Wetland and Riparian Restoration

Following installation of the pipeline facilities, wetlands crossed by the Project will be restored to their original pre-construction condition, which includes restoration of the existing hydric soils, surface contours, drainage patterns, and hydrophytic vegetation. Permanent fill or permanent loss of wetland areas associated with the Project are limited to the filling of 0.036 acre of PEM wetlands and 0.024 acre of PFO wetland mosaic to facilitate access to the Kidder Compressor Station. The overall functional loss of wetlands project-wide will be limited to the fill impact described above and the cover type conversion of PFO and PSS wetlands (5.49 acres within the DRB) to a PEM or PSS cover type at crossing locations within 15 feet of the pipeline. A 10-foot-wide corridor centered on the pipeline may be maintained annually to facilitate pipeline inspections, resulting in a permanent conversion to PEM wetlands.

PennEast proposes to enhance restoration in PFO and PSS wetlands and within forested riparian buffers. PennEast has developed a Wetland and Riparian Reforestation Plan. Within impacted wetlands, PennEast would use Ernst FACW Meadow Mix (ERNMX-122), or an alternative conservation wetland seed mix that contains similar species, to stabilize impacted wetlands. The Ernst Riparian Buffer Mix (ERNMX-178), or an alternative conservation riparian seed mix that contains similar species, will be used in riparian areas. Additionally, impacted PSS wetlands will be replanted with wetland shrub species, and PFO wetlands and forested riparian buffers will be replanted with tree and shrub species that are adapted to the local hydrologic conditions. Planting will occur within the impacted wetland or riparian buffers, but outside of the 30-foot maintained ROW.

4.2.5 Off-Site Compensatory Wetland Mitigation

PennEast proposes off-site compensatory mitigation to compensate for the permanent impacts to wetland cover types. The proposed mitigation ratios are based on the type of conversion that is proposed (i.e., the frequency of ROW maintenance that will result in either PEM or PSS wetlands) and the PADEP wetland classification (e.g., EV or Other wetlands as defined in 25 PA Code §105.17). These proposed ratios are presented in Table 4-1.

Table 4-1
Proposed Compensatory Mitigation Ratios

Impact Type	Conversion Description	Wetland Classification	Mitigation Ratio
PSS	10 feet annually mowed ROW will result in permanent conversion to PEM wetlands	EV	1.75 to 1
		Other	1.5 to 1
PFO	10 feet annually mowed ROW will result in permanent conversion to PEM wetlands	EV	2.5 to 1
		Other	2 to 1
PSS	Remaining 20 feet of the 30-foot wide maintained ROW will remain PSS wetlands but may be mowed as frequently as once every three (3) years	EV	1.5 to 1
		Other	1.5 to 1
PFO		EV	2 to 1

Impact Type	Conversion Description	Wetland Classification	Mitigation Ratio
	Remaining 20 feet of the 30-foot wide maintained ROW will be converted to PSS wetlands and may be mowed as frequently as once every three (3) years	Other	2 to 1

PennEast has contracted WHM Solutions, Inc. to prepare a Compensatory Wetland Mitigation Plan (Appendix E). This plan outlines the plan objectives, site selection criteria, baseline information for each of the three (3) proposed mitigation sites, the credit determination methodology, and the mitigation work plan. Two (2) sites have been selected in the Central Delaware River Sub-basin (Sub-basin 5). Each mitigation site consists of marginal agricultural land that has been historically or is currently used for pasture, hay harvesting, and/or growing corn or other small grain crops. Each site is bisected by or abutting one (1) or more waterbodies. Wetlands at each site would be enhanced by tree and shrub plantings and retiring current pasturing and agricultural operations. The enhancements will increase functions and values of the degraded wetlands as they develop into mixed wetland/riparian buffer complexes. Functional improvements include water quality benefits through increased sediment and nutrient sequestration, floral and vegetation diversity, and enhanced wildlife habitat. A total of 13.460 acres of wetland enhancement and 0.083 acre of wetland creation is proposed at the two (2) sites. The mitigation sites would be protected in perpetuity through the establishment of Declarations of Restrictive Covenants Agreements and demarcation of the conservation area.

4.3 Water Quality Consistency Review

Section 3.10.3 (*Stream Quality Objectives*) of the DRBC's Administrative Manual – Part III Water Quality Regulations, With Amendments Through December 4, 2013, indicates that antidegradation of waters in the DRB is a primary objective of the Commission. As a means of consistency with this objective, the Project has been designed to avoid and minimize potential impacts to waters. In addition, the E&SCP developed for the Project will be implemented to minimize stormwater runoff and maintain the existing water quality of the streams and watersheds that will be crossed. The water quality status of these streams and watersheds is based on the classification level provided by PADEP in its Chapter 93 (*Water Quality Standards*) documentation. The PADEP issued a CWA Section 401 Water Quality Certificate for the Project on February 7, 2017. Maintenance of the water quality along the Phase 1 alignment will be monitored by PennEast as well as by the FERC, the jurisdictional county conservation districts and PADEP. Specific details of the E&SCP are provided in Section 4.1 above.

Section 3.10.3 A 2 (*Special Protection Waters*) further clarifies that it is the policy of the Commission that there be no measurable change in existing water quality except towards natural conditions in waters considered by the Commission to have exceptionally high scenic, recreational, ecological, and/or water supply values. Waters with exceptional values (i.e., Special Protection Waters) may be classified by the DRBC as either Outstanding Basin Waters or Significant Resource Waters. Review of the definitions of Outstanding Basin Waters and Significant Resource Waters provided in Section 3.10.3 A.2.a and further clarified in Sections 3.10.3 A 2.g.1 and 2.g.2, indicates that the specific reaches of the Delaware River and tributaries discussed will not be crossed by the Phase 1 alignment.

Section 3.10.3 A 2.e.1 (*Control of Non-Point Sources*) states that projects subject to review under Section 3.8 of the Compact that are located in the drainage area of Special Protection Waters must

submit for approval a Non-Point Source Pollution Control Plan (i.e., E&SCP, Site Restoration Plan, and PCSM Plans) that controls the new or increased non-point source loads generated within the portion of the project's service area which is also located within the drainage area of Special Protection Waters. PennEast is providing a Non-Point Source Pollution Control Plan (see Appendix B) for Commission review.

Based on the information provided, the proposed Project is consistent with the conditions contained within DRBC's Water Quality Regulations.

4.4 Floodplain Consistency Review

DRBC's Administrative Manual – Part III Basin Regulations and Flood Plain Regulations (Flood Plain Regulations), Effective January 1, 1977 notes:

> *The standards of flood plain use contained in these regulations apply to the non-tidal portions of the Delaware River and its tributaries. They will be utilized by the Delaware River Basin Commission in reviewing certain categories of water-related projects pursuant to Section 3.8 of the Delaware River Basin Compact. They are also designed as minimum compliance standards to be followed by local units of government in the promulgation of flood plain regulation ordinances*

Under Section 6.1.3 A (Purpose and Findings) of the Flood Plain Regulations, DRBC states: *The Commission hereby finds and determines that the use of flood plains is affected with a public interest due to:*

- *The danger to life and property due to increased flood heights or velocities caused by encroachments.*
  The Project will not result in changing contours of waterbodies within the DRB. There are no proposed significant changes to surface topography or land use with exception of grading at the ancillary facilities; therefore, there will be no significant effects on flood velocities. Through the implementation of the E&SCP, Site Restoration Plan, PCSM Plans, and Wetland and Riparian Restoration Plan, development and long-term maintenance activities for Phase 1 of the Project will not result in conditions that will become a danger to life and property due to increased flood heights or velocities caused by encroachments.

- *The danger that materials may be swept onto other lands or downstream to the injury of others.*
  Activities resulting in the potential for flood damage will be limited to temporary site disturbances associated with the installation of pipeline facilities. During operation of Phase 1, no flood damage potential will occur as none of the aboveground facilities proposed for Phase 1 of the Project are located within the FEMA 100-year floodplain. To reduce the potential for flood damage, PennEast will make every effort to expedite construction when working in floodway locations and will remove equipment and construction materials immediately following restoration of the workspace. During construction, PennEast will monitor the local weather forecast and waterbody flow conditions and will implement the necessary measures such as the removal or securing of construction materials or equipment in the event a high-water event is anticipated.

- *The requirements of a facility for a waterfront location.*
  This requirement is not applicable to Phase 1 of the Project.

Under Section 6.1.3 B (Purpose and Findings) of the Flood Plain Regulations, DRBC states: *In order to protect the public interest, the following principles and goals have been determined:*

- *The overall goal is prudent land use within the physical and environmental constraints of the site.*
  Through the siting, landowner coordination, state land coordination, and agency permitting process, PennEast has identified a route and specific locations for necessary facilities that will result in limited land use impacts. These impacts are further reduced through the implementation of specific construction methods, restoration activities, and mitigation requirements.

- *The principle of equal and uniform treatment shall apply to all flood plain users who are similarly situated.*
  Similar to other floodplain users, PennEast will comply with federal and state requirements associated with floodplain usage.

- *Flood plain use shall not result in nuisance to other properties.*
  Through the implementation of the E&SCP, Site Restoration Plan, and Wetland and Riparian Restoration Plan, development and long-term maintenance activities for Phase 1 of the Project will not result in conditions that will become a nuisance to other properties.

- *Flood plain use shall not threaten public safety, health and general affairs.*
  Through the implementation of the E&SCP, Site Restoration Plan, and Wetland and Riparian Restoration Plan, development and long-term maintenance activities for Phase 1 of the Project proposed within the floodplain will not threaten public safety, health, and general affairs.

- *Future land uses in private flood plains shall not result in public expense to protect the property and associated public services from flood damage.*
  Through the implementation of the E&SCP, Site Restoration Plan, and Wetland and Riparian Restoration Plan, development and long-term maintenance activities for Phase 1 of the Project will not result in public expense to protect the property and associated public services from flood damage.

- *All future public and private flood plain users shall bear the full direct and indirect costs attributable to their use and actions.*
  PennEast will be responsible for the full direct and indirect costs attributable to their use and actions within the floodplain.

- *Restrictions on flood plain use, and flood hazard information shall be widely publicized.*
  PennEast is not a unit of government; therefore, this requirement is not applicable.

- *Land and water use regulations of responsible units of government shall not impair or conflict with the flood plain use standards duly adopted for the basin, except as provided for in Section 6-4.3(A) hereof.*
  PennEast is not a unit of government; therefore, this requirement is not applicable.

- *Plans for land and water use adopted by responsible agencies shall not impair or conflict with these flood plain use standards.*
  PennEast is not a unit of government; therefore, this requirement is not applicable.

- *No action of any unit of government shall impair or conflict with these flood plain use standards.*
  PennEast is not a unit of government; therefore, this requirement is not applicable.

Under Section 6.3 (Standards), specifically Section 6.3.1 (Regulations Generally), DRBC indicates: *The uses of land within a flood hazard area shall be subject to regulation within one of the following categories:*

A. Prohibited uses
B. Permitted uses generally
C. Uses by special permit

As discussed below in Section 4.4.1, Phase 1 of the Project will fall in the Use by Special Permit Category. Under Section 6.3.2 A (Prohibited Uses), DRBC indicates: *Within the floodway, except as permitted by special permit, the following uses are prohibited:*

- *Erection of any structure for occupancy at any time by humans or animals.*
  Phase 1 of the Project will not require the erection of any structure within a flood hazard area.

- *Placing, or depositing, or dumping any spoil, fill or solid waste.*
  Aside from the replacement of topsoil and stream bed materials as described in Section 3.2.4 (Best Management Procedures for Wetland Crossings) and Section 3.3.3 (Best Management Procedures for Wetland Crossings), Phase 1 of the Project will not involve the placing or depositing or dumping of spoil, fill, or solid waste in the floodplain.
- *Stock piling or disposal of pesticides, domestic or industrial waste, radioactive materials, petroleum products or hazardous material which, if flooded, would pollute the waters of the basin.*
  Phase 1 of the Project will not involve the use of pesticides, domestic or industrial waste, or radioactive materials, which, if flooded, would pollute the waters of the basin. Project activities may involve the use of petroleum products and hazardous materials, which will not be stored in flood prone areas. PennEast will implement the procedures in its PPC Plan in the event of an inadvertent release of petroleum products and hazardous materials to prevent contamination of soils and water resources.

- *The storage of equipment or of buoyant materials, except for purposes of public safety.*
  PennEast will not store equipment or buoyant materials in flood prone areas.

Under Section 6.3.2 B (Prohibited Uses), DRBC indicates:

Within the flood fringe, except as permitted by special permit, the following uses are prohibited:

- *Stock piling or disposal of pesticides, domestic or industrial waste, radioactive materials, petroleum products or hazardous material which, if flooded, would pollute the waters of the basin.*
  Phase 1 of the Project will not involve the use of pesticides, domestic or industrial waste, or radioactive materials, which, if flooded, would pollute the waters of the basin. Project activities may involve the use of petroleum products and hazardous materials, which will not be stored in flood prone areas. PennEast will implement the procedures in its PPC Plan in the event of an inadvertent release of petroleum products and hazardous materials to prevent contamination of soils and water resources.

- *Any use which will adversely affect the capacity of channels or floodways of any tributary to the main stream, drainage ditch, or any other drainage facility.*
  PennEast will adhere to the construction methodology and restrictions documented in the E&SCP, which is approved by federal and state regulatory agencies, for all temporary stream crossings and in-stream work so that these activities do not adversely affect the capacity of channels or floodways of any tributary to the main stream, drainage ditch, or any other drainage facility.

Under Section 6.3.3 A (Permitted Uses Generally), DRBC indicates: *Within the floodway, the following uses are permitted to the extent that they do not require structures, fill or storage materials or permanently installed equipment, and do not adversely affect the capacity of the floodway:*

- *Agricultural uses such as general farming, livestock and dairy farming, horticulture, truck farming, sod farming, forestry, wild crop harvesting, and normal operating practices associated therewith.*
  Phase 1 of the Project is not an agricultural use.

- *Industrial-commercial uses such as loading areas, parking areas and airport landing strips.*
  Phase 1 of the Project is considered an industrial-commercial use that will not involve the permanent location of aboveground structures in flood prone areas.

- *Private and public recreational uses such as golf courses, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, parks, wildlife and nature preserves, game farms, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, hiking and horseback riding trails.*
  Phase 1 of the Project is not a private and public recreational use.

- *Uses such as lawns, gardens, parking areas and play areas.*
  Phase 1 of the Project will not involve any of these uses.

Under Section 6.3.3 B (Permitted Uses Generally), DRBC indicates: *Within the flood fringe, the following uses are permitted:*

- *Any use permitted in the floodway.*
  See responses above.

- *Residences and other structures constructed so that the first floor, including basement, is above the Flood Protection Elevation. When fill is used, the finished fill elevation shall be no lower than the Flood Protection Elevation for the particular area and shall extend at least 15 feet beyond the limits of any structure or building erected thereto.*
  Phase 1 of the Project will not require the erection of residences or other structures below the Flood Protection Elevation.

4.4.1 Consistency with DRBC Uses by Special Permit within the Floodway and Flood Fringe

As described under Section 6.3.4 A (7) and B.(4) (*Uses by Special Permit within the Floodway and Flood Fringe*) of the DRBC's Administrative Manual – Part III Basin Regulations and Flood Plain Regulations (Flood Plain Regulations), Effective January 1, 1977, the installation of railroads, streets, bridges, and utility transmission lines and pipelines can be authorized under a special permit by the DRBC providing the conditions contained within Section 6.4.2 of the Flood Plain Regulations can be adhered to. These conditions consist of the following: *A special permit may be granted, or granted on stated conditions, provided:*

A. There is a clear balance in favor of the public interest in terms of the following environmental criteria:

- *The importance of a facility to the community.*
  As described in the Project's Final Environmental Impact Statement (FERC, 2017) ("FEIS") and Certificate Order, the Project has been designed to provide a long-term solution to bring the lowest cost natural gas available in the country produced in the Marcellus Shale region in northern Pennsylvania to homes and businesses in New Jersey, Pennsylvania, and surrounding states. FERC, the agency with exclusive jurisdiction to do so, has already found that the Project is needed in the public interest. The Project was developed in response to market demands in New Jersey and Pennsylvania, and interest from shippers that require transportation capacity to accommodate increased demand and greater reliability of natural gas in the region. An additional supply of natural gas to the region will provide a benefit to consumers, utilities and electric generators by providing enhanced competition among suppliers and pipeline transportation providers.

- *The availability of alternative locations not subject to flooding for the proposed use.*
  Given the "cross country" linear nature of the proposed Project, temporary impacts within areas subject to flooding is unavoidable. To mitigate for temporary disturbances within floodway locations, PennEast will implement the BMPs and construction procedures detailed in the E&SCP, as described in Section 4.1.1. These procedures are anticipated to allow for the safe installation of the Project while minimizing impacts to floodplain and floodway locations. Additionally, permanent components of the Project located in floodway areas will be installed at a minimum of three (3) feet below surface grade (five [5] feet below surface grade below waterbody channels), and surface locations will be restored to preconstruction grades and conditions; therefore, no permanent impacts will occur within floodplain and floodway areas.

- *The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.*

Permanent impacts to land use areas crossed by the Project will be limited to locations required for the 30-foot-wide operational ROW, new access roads, and aboveground facilities. Information pertaining to the existing residential, commercial, and industrial areas affected by the proposed Project, as well as the proposed mitigation measures to limit impacts to the affected properties, can be found in the FEIS and Certificate Order for the Project.

- *The relationship of the proposed use to any applicable comprehensive plan or floodplain management program for the area.*
  The components of the proposed Project that are located within areas subject to flooding events will be installed a minimum of three (3) feet below the surface grade in upland locations (five [5] feet below surface grade below waterbody channels), and no aboveground facilities will be located in the 100-year floodplain.

- *The safety of access to the property in times of flood for ordinary and emergency vehicles.*
  To the extent practicable, existing public and private road crossings will be used as the primary means to temporarily or permanently access the ROW during construction and operation of Phase 1 of the Project. The proposed permanent access roads have been sited outside of 100-year floodplain areas and these access points will be utilized for general maintenance of the operational ROW, as well as for regularly scheduled ground patrols. As a result, access to areas within flood hazard locations will be maintained throughout operation of the Project.

- *The expected heights, velocity, duration, rate of rise and sediment transport of the flood water expected at the site.*
  As summarized in Table 3-6, installation of Phase 1 of the Project within flood hazard areas will occur at multiple locations in Pennsylvania. Temporary activity within the floodplain areas will be limited to the installation of the pipeline facilities. Site activity at the individual waterbody crossing locations is anticipated to be completed within 24 to 48 hours of initial trenching operations and affected areas will be restored to preconstruction conditions. Given the short-term nature of the Project within the immediate floodplain corridors of the waterbody crossing locations and the requirement to return disturbed locations back to their original conditions, formal evaluations pertaining to the floodway characteristics for the affected waterbodies were not performed for the Project.

- *The degree to which the proposed activity would alter natural water flow or water temperature.*
  Temporary impacts on surface waters include disturbance of stream banks, removal of riparian vegetation, and in some instances the temporary diversion of stream flow during dry crossing construction. PennEast will adhere to the Project's E&SCP and the BMPs summarized in Section 4.1 and permit conditions to reduce the amount and duration of surface water disturbance. Site activity at the individual waterbody crossing locations is anticipated to be completed within 24 to 48 hours of initial trenching operations, and affected areas will be restored to preconstruction conditions.

  Thermal impacts resulting from the clearing of vegetation are anticipated to be temporary and minimal as construction ROW widths will be reduced at waterbody crossing locations, and

disturbed riparian corridors will be revegetated in accordance with the Site Restoration Plan and the Wetland and Riparian Reforestation Plan.

- *The degree to which archaeological or historic sites and structures, endangered or rare species or animal or plants, high quality wildlife habitats, scarce vegetation types, and other irreplaceable land types would be degraded or destroyed.*
  PennEast has evaluated the potential effects of Phase 1 on vegetation, wildlife, fisheries, aquatic resources, and cultural resources, and an analysis describing the potential impacts that could potentially result from construction of the Project can be found in the FEIS. Specific details pertaining to the existing resources listed previously and the potential impacts and mitigation can also be found in the FEIS.

- *The degree to which the natural, scenic and aesthetic values at the proposed activity site could be retained.*
  Visual impacts associated with Phase 1 of the Project have been evaluated, minimized, and avoided wherever possible. PennEast will minimize impacts to visual resources from construction of the pipeline segments by proposing to co-locate the pipeline with existing pipeline ROWs to the extent practical. Phase 1 is not anticipated to have any significant permanent visual impacts on federal or state listed visually sensitive areas, such as scenic roads, rivers, or natural landmarks as these features are not present in the Project area. As previously described, Project facilities within the 100-year floodplain will be installed a minimum of three (3) feet below the surface grade in upland locations (five [5] feet below surface grade below waterbody channels) and temporarily disturbed ROW locations in the floodplain area will be restored and revegetated in accordance with the applicable federal and state requirements as detailed in the Site Restoration Plan. Permanent impacts within floodplain locations will be limited to the loss of forested locations within the 30-foot operational ROW.

B. The project shall not:

- *Endanger human life.*
  To protect the integrity of the pipeline during flood events, Phase 1 facilities have been designed, and will be constructed, tested, operated, and maintained to conform with applicable federal, state, and local requirements, including USDOT regulations at 49 CFR Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards" and Commission regulations at 18 CFR Section 380.15, "Siting and Maintenance Requirements." The pipeline system will include many pipeline design and equipment features, in addition to routine inspection and maintenance programs, to increase the overall safety of the system and protect the public from system failures due to natural catastrophes, such as severe flooding. Some of the measures include, but are not limited to, coating the pipeline with concrete to prevent it from floating at specific wetland and waterbody locations and extending the minimum cover depth of 5 feet under surface grade of waterbody channels.

- *Have high flood damage potential.*
  Activities resulting in the potential for flood damage will be limited to temporary site disturbances associated with the installation of pipeline facilities. During operation of Phase 1, no flood damage potential will occur as none of the aboveground facilities proposed for Phase 1 of the Project are located within the 100-year floodplain. To reduce the potential for flood

damage, PennEast will make every effort to expedite construction when working in floodway locations and will remove equipment and construction materials immediately following restoration of the workspace. During construction, PennEast will monitor the local weather forecast and waterbody flow conditions and will implement the necessary measures such as the removal or securing of construction materials or equipment in the event a high-water event is anticipated.

- *Obstruct flood flows nor increase flood heights or velocities unduly whether acting alone or in combination with other uses.*
  Site disturbances within the 100-year floodplain will be limited to temporary impacts related to the installation of the pipeline facilities. PennEast has proposed to cross waterbodies using dry crossing techniques, which will allow the waterbody flow to be maintained during construction. Waterbody crossings will be designed to withstand maximum anticipated waterbody flows during the time of the crossing. No permanent structures have been proposed within the 100-year floodplain; therefore, Phase 1 will not obstruct flood flows, increase flood height, or flood velocities. Additional details pertaining to the crossing methods proposed for Phase 1 of the Project can be found in the E&SCP.

- *Degrade significantly the water carrying capacity of any delineated floodway or channel.*
  As previously mentioned, disturbed floodplain surface areas as well as waterbody bed and bank locations will be restored to preconstruction grades and contours and will be permanently revegetated and stabilized in accordance with the procedures found in PennEast's E&SCP. A description of the restoration measures proposed for waterbody crossing locations can also be found in the E&SCP.

- *Increase significantly the rate of local runoff, erosion, or sedimentation.*
  Workspace locations within flood hazard areas will be restored to their original site conditions. PennEast will implement the soil erosion and sediment control BMPs detailed in the Phase 1-specific E&SCP to mitigate for impacts related to erosion control during construction and restoration of Phase 1 of the Project.

- *Degrade significantly the quality of surface water or the quality or quantity of ground water.*
  On February 7, 2017, the PADEP issued a CWA Section 401 Water Quality Certificate for the Project. The construction, restoration and revegetation procedures outlined in the E&SCP will be implemented to prevent impacts to surface water and groundwater resources crossed by Phase 1 of the Project.

- *Be susceptible to flotation.*
  As previously discussed, the components of Phase 1 of the Project located within areas subject to flooding will be installed at a minimum of three (3) feet below surface grade in upland locations and five (5) feet below surface grade below waterbody channels. As an additional safety measure, PennEast will install concrete coated pipe at waterbody crossing locations to ensure negative buoyancy.

- *Have service facilities installed below the elevation of the regulatory flood without being adequately flood proofed.*

No aboveground facilities will be installed within the 100-year floodplain, and PennEast will implement the design measures detailed previously as well as the E&SCP to ensure pipeline facilities are secure within areas subject to flooding.

Based on the information provided, the proposed Project is consistent with the conditions contained within Section 6.4.2 of the DRBC's Flood Plain Regulations.

4.5 Comprehensive Plan Consistency Review

As identified in Section II (Projects) of DRBC's Comprehensive Plan, two (2) reservoir projects contained within DRBC's Comprehensive Plan will be crossed by the Phase 1 alignment, specifically the Frances E. Walter Reservoir and the Beltzville Reservoir, both of which are managed by the USACE as flood control and recreational areas. Specific temporary and permanent impacts to these reservoir areas are provided in Table 3-7. Coordination with the USACE regarding the proposed construction processes, timing restrictions, and long-term maintenance activities has been successfully conducted, and have been approved by the Civil Works Division of the USACE on November 24, 2018. These approvals correspond to consistency with the DRBC's Comprehensive Plan.

Section III of DRBC's Comprehensive Plan reviews the Non-Urban Recreational Areas covered under the plan. Subsection A reviews national non-urban recreation areas that would be managed by the USACE, National Park Service, or USFWS. None of these National non-urban recreation areas will be crossed by Phase 1 of the Project. Subsection B reviews the various State non-urban recreation areas located within the DRB. Specific Pennsylvania non-urban recreation areas that will be crossed by Phase 1 of the Project include:

- Hickory Run State Park;
- Weiser State Forest; and
- Beltzville State Park.

Specific temporary and permanent impacts to these recreational areas are provided in Table 3-7.

Coordination with the DCNR Bureau of Forestry, which has jurisdiction over these specific recreational areas, began in 2014 and is ongoing. According to the DCNR Environmental Review Policy, a State Forest Environment Review ("SFER") document is required for DCNR review for any of the following activities that *may or will disrupt, alter, or otherwise change the environment*:

- Any wetlands encroachment;
- In-stream alterations;
- Disturbance activities in a natural area including insect and disease control;
- Timber management in a wild area;
- Right-of-way expansions or new construction (pipelines or major powerlines);
- Surface mining, oil and gas leases (excluding gas storage);
- Large-scale stone removals;
- Subsurface disturbance to caves;
- Addition of public-use roads to the state forest road system;
- Land acquisitions/exchanges;
- New trail construction;
- Large blocks of artificial regeneration, i.e., monocultures (>10 acres);
- Wind power development (proposed); and

- Other projects as determined by the state forester.

According to the Environmental Review Policy, the SFER must include the following: *Written environmental reviews will include a description of the project, justification for the project's need, a description of the project site, and a narrative consideration of each of the environmental review items. The narrative consideration must include an assessment of the project's probable impact on each factor and whether it is beneficial or adverse. Factors where an adverse impact is predicted require an explanation of the corrective measures that will be taken, or justification why none are planned.*

- **Promotion of Goals:** Every acre of state forest lands is included in an array of goals. including ecoregional goals, landscape goals, and plan component goals (State Forest Resource Management Plan ["SFRMP"] - Overview).
- **Erosion and Sedimentation:** Soil losses and resultant water degradation can be greatly reduced or prevented for most activities (BMP Manuals, Timber Sale Manual, SFRMP Water, Soil, and Fauna Sections, or County Conservation District).
- **Water Quality:** Potential sedimentary, thermal, and chemical pollution can be avoided for most activities. Existing pollution can be reduced or eliminated by certain practices or procedures (BMP Manuals, SFRMP Water, Soil, and Fauna Sections, the PADEP Bureau of Water Quality Management or PFBC).
- **Air Quality:** Potential dust, smoke, chemical, and other pollution can be avoided for most activities. Certain practices, like timing of the activity, can alleviate potential problems when the pollutant cannot be reduced or prevented (PADEP Bureau of Air Quality).
- **Water Quantity:** Certain practices in or adjacent to wetlands can affect the water level. Streams and bodies of water are also subject to manipulation of water levels. Practices should have an overall beneficial effect and not adversely affect water levels (SFRMP - Water, PADEP Bureau of Water Supply Management or PFBC).
- **Groundwater:** Potential pollution of groundwater can be avoided for most activities (SFRMP - Water, DCNR Bureau of Topographic & Geologic Survey, PADEP Bureau of Water Quality Protection).
- **Soils:** Potential problems such as erosion, stability, over-compaction and saturation should be anticipated and avoided (SFRMP - Soils, SCS County Soil Survey, County Conservation District, or PADEP Bureau of Water Quality Protection).
- **Unique and Unusual Geologic Features:** Potential damage to or destruction of these features should be anticipated and avoided (SFRMP and Pennsylvania Natural Diversity Inventory for details of locations. Minerals Section, Bureau of Forestry or DCNR Bureau of Topographic and Geologic Survey for details of possible project effect on feature and preventive measures).
- **Aesthetic Values:** Often projects can be blended into their surroundings, or the adverse impact of their appearance can be lessened by certain practices or procedures (Operating Management Manuals).
- **Noise Levels:** Potential problems for the public, contractors, and employees should be anticipated and avoided. Certain practices or procedures such as timing of the activity and the use of buffer zones can alleviate potential problems.
- **Archeological Sites and Historic Sites:** Potential damage to or destruction of these features should be anticipated and avoided. Discovery of new sites should be reported to the Division of Planning & Information (SFRMP - Infrastructure, Historical and Museum Commission).
- **Recreation Sites and Opportunities:** Potential damage to or degradation of existing or potential recreational sites should be anticipated and avoided. Certain practices such as timing

of the activity and use of buffer zones can alleviate potential problems (Bureau of Forestry - Division of Operations & Recreation).

- **Public Health and Safety:** Project design and administration must ensure that the public is protected at the project site from all potential hazards that could be associated with the project activities or result from the completed project (Bureau of Forestry - Division of Operations & Recreation, Bureau of Facility Design and Construction).
- **Transportation:** Project design must ensure adequate ingress to and egress from the site and minimize disruption of public rights-of-way (Bureau of Forestry -Division of Operations & Recreation).
- **Energy Needs/Use:** Energy resources fill domestic and commercial needs. Projects should also be designed to use energy wisely and ensure conservation (Minerals Section).
- **Existing/Potential Land Use:** Project design should be compatible with current zoning for the site and planned future uses, if any. The project should conform to landscape goals and be consistent with adjoining lands strategy (SFRMP - Overview).
- **Protected Animals and Plants:** Certain animal and plant species have been listed and given protected status by the USFWS, the PGC, the PFBC and the DCNR. Projects that will have a potentially adverse effect on any of these species, or the habitats critical to their survival should be avoided. (For a listing of these species and guidelines for their protection, refer to the SFRMP - Fauna, Flora and Ecological Considerations, Bureau of Forestry - Ecological Services Section and Pennsylvania Natural Diversity Inventory).
- **Habitat Diversity and Interspersion:** Habitats are classified as either terrestrial, wetland, aquatic, riparian or cave. Management strategies, in most cases, should be designed to optimize diversity within and between these habitats, primarily by promoting various habitat components. When protecting, creating or developing habitat components, consideration should be given to the arrangement or interspersion of these components within a landscape. (SFRMP - Fauna and Flora).
- **Biological Productivity:** While it is the goal of the bureau to provide for and maintain a diversity of species, it is also striving to promote conditions favorable for maintaining viable populations of certain species, while still maintaining diversity. Management for productivity may be directed toward a particular species or group of species while not jeopardizing the overall species diversity of a particular landscape or ecological region (Bureau of Forestry - Ecological Services Section).
- **Vegetation:** Many projects require the manipulation or disturbance of forest vegetation. Effects on the project on forest communities should be considered.
- **Non-Native Invasive Species:** Some projects have the potential to either directly introduce non-native invasive species or create conditions favorable for the potential introduction of these species (Bureau of Forestry - Ecological Services Section).
- **Other:** Consider other unique features that may be affected by the proposed project (e.g., scenic rivers, National Natural Landmarks).
- **Permits:** Projects affecting or encroaching on wetlands require encroachment permits. New entrances to public roads, other than state forest roads, require occupancy permits. Certain other activities also require permits.

Phase 1 of the Project will involve wetland encroachments, in-stream alterations, the expansion of ROWs, and new construction. As such, PennEast developed and submitted a SFER document for state parks and a SFER document for state forests that addressed the components listed above for review by

DCNR. The coordination process has resulted in the modification of specific route locations and construction practices, and the formation of specific post-construction monitoring requirements. The SFER document is still under review by DCNR. Eventual approval of the SFER will correspond to consistency with the DRBC's Comprehensive Plan.

5.0 CONCLUSION

As detailed in Section 3.8 (Referral and Review) of the DRBC Compact (DRBC, 1961): *No project having a substantial effect on the water resources of the basin shall hereafter be undertaken by any person, corporation or governmental authority unless it shall have been first submitted to and approved by the commission, subject to the provisions of Sections 3.3 and 3.5. The commission shall approve a project whenever it finds and determines that such project would not substantially impair or conflict with the comprehensive plan and may modify and approve as modified, or may disapprove any such project whenever it finds and determines that the project would substantially impair or conflict with such plan. The commission shall provide by regulation for the procedure of submission, review and consideration of projects, and for its determinations pursuant to this section. Any determination of the commission hereunder shall be subject to judicial review in any court of competent jurisdiction.*

As proposed, Phase 1 of the Project will have no long-term significant detrimental effects to aquatic and terrestrial habitats temporarily impacted by construction of the Project. The realistic, reasonable extent of future impacts resulting from Phase 1 would predominantly focus on facility operation and maintenance activities. Such activities would be conducted in a manner similar to the construction period (e.g., avoiding and minimizing disturbances and implementing seasonal timing restrictions) and would thereby limit any future temporary or permanent water resource impacts. As a result, Phase 1 of the Project would not substantially impair or conflict with the DRBC's Comprehensive Plan.

Impacts will be avoided and minimized during construction by adherence to PennEast's BMPs contained within the E&SCP. PennEast will rely on the E&SCP for the crossing of water resources and the Site Restoration Plan for restoration and revegetation of Phase 1 impact areas following installation of the pipeline.

The proposed restoration of wetlands and riparian areas along waterbodies will help to mitigate impacts to water quality. Off-site compensatory mitigation will be implemented in accordance with USACE and PADEP specifications through the permitting process. Impacts to forested locations have been reduced to the maximum extent practicable. Trees and other woody vegetation will be allowed to re-vegetate naturally within the temporary pipeline construction ROW and extra workspaces. Where the pipeline crosses nature preserves, state parks, or state game lands in Pennsylvania, PennEast will actively replant areas in order to replace mature trees and shrubs within temporary workspaces impacted by construction.

PennEast will also implement an approved Site Restoration Plan, PCSM Plans, and a PPC and Unanticipated Discovery of Contamination Plan throughout Phase 1 of the Project that will further minimize risks from spills or leaks, erosion and sedimentation, and stormwater runoff from construction areas with exposed soils.

Through the implementation of these plans and the oversight of state and county agencies, Phase 1 of the Project would not substantially impair or conflict with the DRBC's Water Quality Regulations or Flood Plain Regulations.

6.0 REFERENCES

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