Texas Eastern Appalachian Lease Project

Waters Delineation Report

Pittsburgh District

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ACRONYMS AND ABBREVIATIONS

EPA	U.S. Environmental Protection Agency
FERC or Commission	Federal Energy Regulatory Commission
HHEI	Headwater Habitat Evaluation
hp	horsepower
GIS	geographic information system
HUC	Hydrologic Unit Code
NEXUS or NEXUS Project	NEXUS Gas Transmission Project
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OEPA	Ohio Environmental Protection Agency
ORAM	Ohio Rapid Assessment Method
PAR	permanent access roads
PEM	palustrine emergent
PFO	palustrine forested
PSS	palustrine scrub-shrub
PUB	palustrine unconsolidated bottom
QHEI	Qualitative Habitat Evaluation Index
ROW	right-of-way
SSURGO	Soil Survey Geographic
TAR	temporary access roads
Texas Eastern	Texas Eastern Transmission, LP
TNW	traditional navigable waters
TRC	TRC Environmental Corporation
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

1.0 INTRODUCTION

Texas Eastern Transmission, LP ("Texas Eastern"), an indirect wholly owned subsidiary of Spectra Energy Partners, LP, is currently seeking a Certificate of Public Convenience and Necessity ("Certificate") from the Federal Energy Regulatory Commission ("FERC or Commission") pursuant to Section 7(c) of the Natural Gas Act authorizing the construction and operation of the Project. On November 20, 2015, Texas Eastern filed with the FERC an Abbreviated Application for a Certificate and for Related Authorizations regarding its proposed Texas Eastern Appalachian Lease Project ("TEAL Project" or "Project"). FERC has assigned docket number CP16-23-000 to the TEAL Project.

The TEAL Project involves the construction of (1) a 4.4-mile, 36-inch diameter mainline pipeline loop, (2) 1,790 feet of connecting pipeline to connect Texas Eastern's Line 73 with the NEXUS Project, (3) the Salineville Compressor Station, an 18,800 horsepower ("hp") compressor station in Franklin Township, Columbiana County, Ohio, (4) an additional 9,400 hp of compression at the existing Colerain Compressor Station in Belmont County, Ohio, (5) piping and other modifications to permit bi-directional flow on Line 73, and (6) various additional related auxiliary facilities.[1]

Texas Eastern will construct the TEAL Project facilities in two phases, with the first phase of facilities (the "2017 Facilities") targeted for completion by November 1, 2017, and the second phase of facilities (the "2018 Facilities") targeted for completion by November 1, 2018. The 2017 Facilities include the 4.4-mile loop in Zone M2 and the piping facilities necessary to connect Line 73 to NEXUS Project facilities, as well as related auxiliary facilities, including auxiliary facilities necessary to allow bi-directional flow through the Colerain Compressor Station. The 2017 Facilities are designed to create 637,559 Dth/d of capacity. The 2018 Facilities include the new compressor unit at the Colerain Compressor Station, the new Salineville compressor station in Columbiana County, and related auxiliary facilities. The 2018 Facilities are designed to increase the total quantity of capacity created by the Project to 950,155 Dth/d.

TRC Environmental Corporation ("TRC") has prepared this Wetland Delineation Report for the proposed TEAL Project on behalf of Texas Eastern. TRC was retained by Texas Eastern to identify and delineate jurisdictional wetlands and waterways along the proposed pipeline route, associated aboveground facilities, additional work areas, staging areas, and access roads. Refer to Figure 1.1-1 for a Project overview map showing the location of all proposed facilities.

Wetland and waterbody delineations were conducted for the entire Project area with the objective of identifying and then designing Project facilities to avoid, minimize and mitigate temporary impacts to federal and state jurisdictional wetlands and waterbodies to the extent practicable. This report describes the wetland delineation methodology and the existing wetland and waterbody resources that were identified in the study area during field surveys for the Project. The Project is located entirely within one U.S. Army Corps of Engineers ("USACE") District; the Pittsburgh District.

[1] Texas Eastern's Line 73 and the Colerain Compressor Station in Belmont County, Ohio, were approved by the Commission in Docket No. CP14-68-000. *See Texas Eastern Transmission, LP*, 149 FERC ¶ 61,198 (2014).

Figure 1.1-1: Project Overview Map

2.0 EXISTING CONDITIONS

The TEAL Project is sited in a rural portion of eastern Ohio within the USACE Pittsburgh District. The Project area crosses a mix of open pasture, agricultural, and forested land. Some of these lands were former surface and underground coal mines. Existing topography, land use/vegetation cover types, and soil conditions are discussed in the following sections.

2.1 Topography

The Project is sited within Appalachian Highlands physiographic region of Ohio. The topography of much of the Project route is rugged, with steep hillsides and moderate to high relief. Project features in Columbiana County lay within the Muskingum-Pittsburgh Plateau, which is characterized by moderately high to high relief (approximately 300 to 600 feet) hills with outwash deposits in some of the larger stream valleys. Elevations within the Muskingum-Pittsburgh Plateau range from 650 to 1,400 feet. The remainder of the Project is located within the Little Switzerland Plateau, a highly dissected plateau with high relief (approximately 450 to 750 feet) and elevations range from approximately 540 to 1,400 feet. Based on a review of U.S. Geological Survey ("USGS") 7.5 minute series topographic quadrangle maps, most of the Project is between 900 and 1,250 feet in elevation.

2.2 Drainage Basin

The TEAL Project is located in the Upper Ohio River drainage basin. The drainage pattern along the Project route is dendritic. Larger streams generally flow to the east, towards the Ohio River. Streams crossed by the Project are typically located in narrow V-shaped valleys. The Hydrologic Unit Codes ("HUC") 12 watersheds and USGS National Hydrography Dataset flowlines crossed by the Project are depicted in the watershed map provided in Item 6. Table 2-1 in Item 2, provides the beginning and end milepost of HUC 8 and HUC 12 unit watershed crossings.

2.3 Existing Cover Types

The proposed TEAL Project will be co-located with existing right-of-way ("ROW") and will result in temporary disturbance to existing land use during construction of the proposed facilities and, to a lesser degree, during the operation and maintenance of the Project facilities. Based on field surveys in combination with using recent high-resolution aerial photography for analysis, the TEAL Project facilities crosses five basic existing cover type/land use categories.

- Open Land: utility ROWs, open fields, vacant land, herbaceous and scrub-shrub uplands, non-forested lands, and emergent and scrub-shrub wetland;
- Agricultural: active hayfields;
- Forest/Woodland: upland and wetland forest;
- Industrial/Commercial: developed areas, natural gas utility facilities, roads and paved areas; and
- Open Water: water crossings greater than 100 feet wide and streams visible on aerial photography but less than 100 feet in width. The Project does not have any waterbody crossings that are greater than 100 feet wide.

The Project area will require approximately 241.48 acres during construction, all of which has been surveyed for wetland and waterbody resources. The Project area includes approximately 110.01 acres of open land, 77.62 acres of agricultural land, 39.36 acres of forest/woodland, 14.33 acres of industrial/commercial roads, and 0.16 acres of open water. See Section 4.1.1 below for upland forested, forested wetland, and non-forest wetland vegetation observed during field surveys. In addition, Section 4.0 discusses the total acres of wetland forested and non-forested wetland.

2.4 Soil Conditions

The descriptions and characteristics of soils discussed in this Waters Delineation Report were compiled from a variety of data sources including soil surveys published by the United States ("U.S.") Department

of Agriculture ("USDA") – Natural Resources Conservation Service ("USDA-NRCS" or "NRCS") and website databases maintained by the USDA-NRCS. Soil surveys referenced in this Report include those for Columbiana, Belmont, and Monroe counties. Websites used include the USDA-NRCS "Official Series Description" website (USDA, 2010a) and the USDA-NRCS "Soil Data Mart" website (USDA, 2010a).

Soils within the Project area were mapped utilizing the USDA-NRCS digital Soil Survey Geographic Database ("SSURGO"), which includes geospatially referenced Geographic Information System soil map unit polygons at a 1:24,000 scale (USDA, 2010b). The SSURGO contains the most detailed level of soil mapping performed by the NRCS, and corresponds with or supersedes the original county soil survey mapping. A figure depicting NRCS mapped soils crossed by the Project is located in Appendix A.

Based on NRCS soils information, 28 soil series will be crossed by the pipeline facilities. None of the soils are hydric and most of the soils are well drained. Table B-1 in Appendix B provides a summary of the soils types crossed by the Project and a NRCS based soil map in Appendix A depicts the soils located along the Project.

3.0 WETLAND AND WATERBODY DELINEATION METHODOLOGY

Wetland scientists from TRC conducted wetland and waterbody delineations during the spring through fall of 2015. Wetland and waterbody field surveys were conducted generally within a 300-foot wide study corridor along the proposed pipeline route and 50-foot wide along proposed access roads. In addition, the locations of proposed aboveground facilities were surveyed.

The wetland delineations were performed in accordance with the Routine Determination Method presented in the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Version 2.0* (USACE, 2012) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain Piedmont Region Version 2.0* (USACE, 2012 including clarifications and interpretations provided in the March 6, 1992 guidance memorandum (Williams, 1992), and the U.S. Environmental Protection Agency ("EPA") and USACE guidance on jurisdictional forms (EPA and USACE 2007; USACE, 2008). This delineation approach outlined by USACE involves the following: (i) predominance of hydrophytic vegetation as defined by the National Wetland Plant List (Lichvar, 2014); (ii) evidence of wetland hydrology; and (iii) presence of hydric soils. Positive indicators of all three parameters are normally present in wetlands and serve to distinguish between both upland and transitional plant communities. Wetlands were also assessed and scored in accordance with Ohio Environmental Protection Agency's ("OEPA") *Ohio Rapid Assessment Method ("ORAM") for Wetlands, Manual for Using Version 5.0 (*Mack, 2001).

Prior to field delineations for wetland and waterbody resources, TRC reviewed USGS 7.5-minute quadrangle maps, aerial photographs, National Wetland Inventory ("NWI") mapping, Federal Emergency Management Agency 100-year floodzone mapping, and NRCS soil mapping, to identify potential wetland and waterbody features present within the Project area. The Project is sited outside of Federal Emergency Management Agency designated flood zones. Figures Project wetland and waterbody delineation boundaries are provided on the vicinity mapping (aerial photography base map) as well as the USGS quadrangle in Item 6. Wetland and waterbody summary documentation and the OEPA scoring forms are also provided in Appendix C.

3.1 Wetland Delineation Methods

Once the wetland was identified utilizing methods outlined by USACE and OEPA, the wetland boundary was marked with sequentially numbered (alpha-numeric) pink flagging labeled with "Wetland Delineation." After a wetland area was initially identified in the field, locations for both upland and wetland data plots were established along a transect, generally perpendicular to the wetland/upland boundary. USACE Routine Wetland Determination data forms were completed at each wetland crossing for representative wetland and upland data plots in order to document conditions within each plant community

and firmly establish the wetland boundary using wetland indicators. In addition to the USACE data forms, TEAL Project wetland summary forms describing overall wetland conditions, including sketches and additional metrics outlined by ORAM forms, were completed for each wetland. All compiled wetland data forms are available in Appendix C of this report.

3.2 Waterbody Delineation Methods

The waterbodies within the Project area consist of streams. The stream features were categorized as ephemeral, intermittent, or perennial, as described in 77 FR 10184 (Federal Register, 2012). Streams were identified and classified by the presence of an ordinary high water mark and scoured channel or defined bed and banks. Delineation of waterbodies were completed along the approximate centerline of stream channels less than six feet wide, along the top of bank for rivers or streams greater than six feet wide. Sequentially numbered (alpha-numeric) blue flagging was utilized to demarcate these resources and each was geographically located using Global Positioning Satellite. Stream summary forms detailing characteristics used for scoring quality of habitat, including flow regime, substrate, presence of biota, and morphology were completed for each waterbody within the Project area.

Wetland and waterbody boundary flags were located using a handheld GeoExplorer 6000 Series GeoXH Global Positioning Satellite unit, capable of sub-meter accuracy. The data was collected using the WGS 1984 geographic coordinate system. These data were downloaded into Trimble's Pathfinder Office software and then exported as an ESRI shapefile. Next, the points were brought into ArcGIS and projected into the NAD83 Datum UTM Zone 17N (U.S. Survey Foot) coordinate system. These data were downloaded into a geographic information system ("GIS") system, and plotted on the Project mapping provided in Appendix C.

3.3 Ohio Wetland and Waterbody Scoring Methods

The OEPA scoring forms were completed for each wetland and stream crossed by the Project. ORAM forms were completed and appropriate categories were assigned to each wetland based on OEPA guidelines. Habitat found in each stream was assessed and scored using OEPA's Primary Headwater Habitat Evaluation ("HHEI") or Qualitative Habitat Evaluation Index ("QHEI"), as described in *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams Version 3* (OEPA, 2012). The HHEI method was used for streams that had a watershed area less than one-square mile. The QHEI method was used for streams that had a watershed area greater than one-square mile, or where a stream's natural pools were greater than 40 centimeters in depth. The OEPA scoring forms are available in Appendix C of this report.

4.0 WETLAND AND WATERBODY DELINEATION RESULTS

The wetland and waterbody results identify and locate all potential resources that will be crossed by the Project. The following sections describe the natural vegetation cover types, wetland and upland, found within the Project area.

4.1 Wetland Delineation Results

4.1.1 Vegetation

Wetland cover types were assigned to each delineated wetland according to *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979). The Cowardin classification system is a hierarchical system based primarily on the general classification of wetlands into marine, estuarine, palustrine (freshwater wetland), riverine (stream), or lacustrine (lake) systems, and the dominant vegetation layer. Only palustrine and riverine classification types were identified along the Project area (wetlands that would be classified under Cowardin et al., 1979 as riverine are listed under waterbody delineation results in Section 5.0, and are not further described here). Using this hierarchical wetland classification system, three primary cover types were identified for vegetated wetlands in the survey area: palustrine forested ("PFO"), palustrine scrub-shrub ("PSS"), and palustrine emergent ("PEM"), wetlands. Some wetlands

contained multiple cover types and were described as co-dominant emergent, scrub-shrub, or forested vegetation.

Palustrine Forested Wetlands

PFO wetlands are characterized by woody vegetation that is 6 meters (approximately 20 feet) tall or taller and normally include an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer (Cowardin et al., 1979). The forested wetlands along the Project are classified as palustrine forested broad-leaved deciduous. The forested wetlands along the route were typically found along floodplains, bottomlands, and seeps.

The forested wetlands along the Project are classified as palustrine forested broad-leaved deciduous. Generally, these wetlands have seasonally flooded inorganic, poorly drained mineral soils. Plants often associated with forested wetland communities along the Project are: green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), American elm (*Ulmus Americana*). Shrub species also observed in these wetlands include spicebush (*Lindera benzoin*) and multiflora rose (*Rosa multiflora*). Depending upon the degree of shading, soil characteristics, and hydrology, groundcover species found within forested wetland areas include fowl bluegrass (*Poa palustris*) and yellow avens (*Geum aleppicum*).

Palustrine Scrub-Shrub Wetlands

PSS wetlands are dominated by woody vegetation less than 20 feet in height (Cowardin et al., 1979). Scrub-shrub wetlands may include habitats where the climax community that typically are located margins of semi-permanent to permanently flooded areas, or where secondary-growth habitat composed of shrub or sapling species is present due to recent disturbance. Scrub-shrub wetlands may include habitats where the climax community consists of shrub species such as a buttonbush swamp, or where secondary-growth habitat composed of shrub or sapling species is present due to recent disturbance. In cases of disturbance or where individuals do not reach 20 feet due to other environmental conditions, sapling species composition for scrub-shrub wetlands may overlap with species described above for forested wetlands. Common vegetation in scrub-shrub wetlands includes spicebush, multiflora rose and various species from the *Rubus* family.

Palustrine Emergent Wetlands

PEM wetlands are non-tidal wetlands characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. PEM wetlands usually are dominated by perennial plants (Cowardin et al., 1979). These wetlands are commonly referred to by a host of terms, including marsh, wet meadow, and sloped seeps. Marshes represent emergent wetlands that are flooded for all or most of the year. During field surveys, the following species were identified: reed canary grass (*Phalaris arundinacea*), jewel weed (*Impatiens capensis*), sensitive fern (*Onoclea sensibilis*), *Aster* sp., fowl bluegrass (*Poa palustris*), trumpetweed (*Eutrochium fistulosum*), false mermaidweed (*Floerkea proserapinoides*), yellow avens, common rush (*Juncus effusus*), sedge species (*Carex sp.)*, and creeping jenny (*Lysimachia nummularia*).

Forested/Scrub-Shrub/Emergent Wetlands

Some wetlands are best characterized as having co-dominance between vegetation types, such as a mixed forest and scrub-shrub communities. On NWI maps, these can appear as PFO/PSS, PFO/PEM, and PSS/PEM and may occur as adjacent communities within a single wetland, or a single co-dominant community. Communities with mixed dominance are composed of vegetation similar to that described above for separate forested, emergent, and scrub-shrub wetlands.

Upland Forest

Forest communities in the Project area were characterized as central hardwoods, transition hardwoods and secondary growth hardwood forests. Typical of secondary growth, some of the forest was dense and there was a well-developed understory in most areas. The typical understory species included: honewort

(*Cryptotaenia canadensis*), white snakeroot (*Ageratina altissima*), clustered snake root (*Sanicula odorata*), aniseroot (*Osmorhiza longistylis*), and spice bush. Formerly mined and regenerating farm land often had thick understory growth of multiflora rose. The central hardwood forest is typified by oak-hickory, the so-called *central hardwoods* black oak (*Quercus velutina*), white oak (*Q. alba*), shagbark hickory (*Carya ovata*), red elm (*Ulmus rubra)*, bitternut hickory (*Carya cordiformis*) and associated species. The transition hardwood forest is characterized by a greater frequency of northern hardwood forest species such as American beech (*Fagus grandifolia*) and sugar maple (*Acer saccharum*).

Upland Open Land/Early Successional-Upland Scrub-Shrub

Upland open land/early successional-upland scrub-shrub vegetation communities in this region of Ohio are typically agricultural lands that are being maintained as open land or former agricultural or mining impacted lands that are in the process of reverting to forest land. A smaller component of this cover type is post-timber harvest regeneration. These habitats, which range from grasslands to scrub-shrub to young forests, were typified by grasses and herbs such as timothy (*Phleum* spp), tall fescue (*Festuca arundinacea*), orchard grass (*Dactylis glomerata*), broomsedge (*Andropogon virginicus*), bentgrass (*Agrostis alba*), common mullein (*Verbascum thapsus*), wild carrot (*Daucus carota*), plantain species (*Plantago* spp.), common ragweed (*Ambrosia artemisiifolia*), clover species (*Trifolium* spp.), goldenrods (*Solidago* spp.), and aster (*Symphyotrichum* spp; *Erybia* spp.), to shrubs like buckthorns (*Rhamnus* spp.), Osage orange (*Maclura pomifera*), honeysuckles (*Lonicera* spp.), multiflora rose, raspberry species, and to trees like black locust (*Robina pseudo-acacia*).

4.1.2 Hydrology

Site hydrology was examined within each wetland and adjacent upland area. Indicators of wetland hydrology included inundation or evidence of inundation (such as water stained leaves), high water table and/or saturation within the upper portion (12 inches) of the soil during the growing season, drainage patterns, sediment deposition, surface scouring, drift lines within wetlands, geomorphic position, iron deposits, presence of reduced iron, recent iron reduction in tilled soils, and oxidized root channels in the upper 12 inches of soil. Hydrologic factors contributing to the presence of wetland hydrology within wetlands in the survey area included inundation with river, pond, or stream water, temporarily ponded snowmelt and runoff, and seasonally to permanently shallow groundwater tables.

Wetland summary and wetland determination data forms include documentation on hydrology for each wetland delineated within the Project area. Indications of permanent hydrology, seasonal flooding or saturation are included on the forms along with depth of inundation if observed. Hydrogeomorphic classification data is also included on the forms.

In general, uplands along the Project route lacked wetland hydrologic indicators. Upland areas were generally higher in topography than the adjacent wetland areas. In some upland areas, hydrologic indicators of wetlands were present however, these upland areas lacked hydrophytic vegetation or hydric soils or both. Evidence of hydrology in upland areas included surface scouring such as pushed leaves from surface drainages, sediment deposits, etc. Wetland determination data forms for upland areas are included in Appendix C.

4.1.3 Soils

TRC conducted soil profile characterizations in the survey area to confirm the presence or absence of hydric soil indictors. Typical hydric soil indicators in the Project survey area included ponded or flooded soils, soils with a subsoil matrix depleted of iron near the surface, and soils with dark surface horizons underlain by subsoils with redoximorphic features grading to a depleted matrix near the surface. Upland soils in the Project survey area typically exhibited brown to dark brown surface horizons underlain by brown to olive brown subsoils. Redoximorphic features indicative of periodic short term saturation, such as iron concentrations and pore linings, were sometimes present in upland subsoils but hydric soil morphologies were absent (i.e. depths and amount of redoximorphic features were not appropriate to make the soils key

using Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 7.0) (USDA and NRCS, 2010).

4.1.4 Project Wetland Summary

A total of 16 wetland crossings were identified in the survey area along the Project pipeline route, connecting pipeline, aboveground facilities, access roads, and associated workspaces. See Table 4-1 below for a summary of the wetlands crossed by Project facilities.

The Project pipeline facilities will cross a total of 16 wetland areas. This will result in a total of 1.17 acres of temporary wetland impacts, which includes 1.12 acres of temporary impact to palustrine emergent, scrub-shrub and unconsolidated wetland types and 0.05 acres of temporary impact to palustrine forested wetland types. Since hydrologic conditions during operation of the pipeline will be returned to pre-construction conditions, there will be no permanent loss of wetlands. There will, however, be a permanent conversion of 0.02 acres of forested wetlands into emergent or scrub-shrub wetlands as a result of vegetation maintenance of the permanent maintained ROW. Narrative descriptions of typical wetland vegetation, hydrology, and soils and associated uplands observed within the Project survey area are presented in the following sections.

There are no wetlands affected by temporary or permanent access roads or aboveground facilities.

The natural resource mapping and the USGS quadrangle mapping in Appendix C provides the delineated boundary of the Project wetlands and waterbodies. Wetland types were assigned based on the NWI classifications as described in Cowardin et al., 1979. Table 2.3 in Item 2 provides a list of the wetlands identified along the Project corridor which will be impacted, including Wetland ID, NWI classification, MP, crossing length, wetland ORAM score, and latitude and longitude coordinates. Appendix C includes wetland summary forms, wetland determination data forms, ORAM forms, detailed delineation maps, and photographs for all impacted wetland. See each particular ORAM form for a brief narrative discussion of each wetland. Detailed wetland sketches as well as detailed wetlands characteristic information (vegetation, hydrology, soils, other relevant details) are provided in the each wetland's summary form.

TABLE 4-1

Summary of Wetlands Affected by Construction and Operation of the TEAL Project a/

Facility b/	**Total Crossing Length (feet)**	**Total Wetland Area Affected (acres)** c/	**Total Forested Wetland Area Affected (acres)** c/	**Wetland Area Affected by Periodic O&M (acres)** d/	**Forested Wetland Area Affected by Periodic O&M (acres)** d/
Pipeline Facilities					
Pipeline Loop	1033.27	1.00	0.05	0.63	0.02
Interconnecting Pipeline to NEXUS	109.91	0.17	0.00	0.12	0.00
Aboveground Facilities	0.00	0.00	0.00	0.00	0.00
PROJECT TOTAL	**1143.18**	**1.17**	**0.05**	**0.75**	**0.02**

a/ Minor discrepancies in totals are due to rounding.

b/ Facility indicates where a particular wetland is located along Project pipeline.

c/ Total wetland/forested wetland acreage affected includes impacts associated with all areas within the construction workspace limits, temporary and permanent.

d/ Total wetland/forested wetland acreage affected by Operations and Maintenance (O&M) includes impacts associated with vegetation

4.2 Waterbody Delineation Results

The proposed TEAL Project area is located in two major watersheds: Little Beaver Creek drainage basin and the Central Ohio Tributaries drainage basin (OEPA, 2012). The majority of the Project (93 percent) is located within the Central Ohio tributaries drainage basin. HUC 12 watersheds and USGS National Hydrography Dataset flowline crossed by the Project are depicted in the watershed map provided in Item 6. Table B-1 in Appendix B, provides the beginning and end milepost of HUC 8 and HUC 12 unit watershed crossings.

During field surveys, 15 waterbodies were identified within the TEAL Project area. Ten perennial streams were identified and the remaining five stream crossings consist of small, intermittent stream flow types. A total of 1,449 linear feet of streams are located within the Project work areas. No ponds were observed along the Project.

The waterbodies located within the Project work areas are listed in Table 2.2 in Item 2. This table includes waterbody ID, waterbody name, MP, flow type, length of stream, approximate stream width, HHEI score and HHEI Class or QHEI score, and latitude and longitude of the stream. Appendix C includes stream summary forms, OEPA HHEI or QHEI forms, photographic documentation, natural resource maps, and USGS mapping for each waterbody crossed by the Project.

5.0 SUMMARY OF RESULTS

Wetland scientists from TRC conducted wetland and waterbody delineations during the spring through fall of 2015. The wetland delineations were performed in accordance with the USACE wetland delineation criteria and methodology using the 1987 USACE Wetland Delineation Manual and applicable regional supplements. Waterbodies within the proposed Project area consist of streams. Streams were identified and classified by the presences of defined banks and channel. Waterbody delineations were performed at the centerline of stream channels less than six feet wide and along the top of bank for rivers or streams greater than six feet wide. The wetlands and waterbodies were delineated with flagging in the field.

During these surveys 16 wetlands and 15 waterbodies were identified along the Project facilities (*see* Tables 2-3 and 2-2 in Item 2, respectively). The general wetland communities identified along the Project route include forested broad-leaved deciduous wetlands located on seeps, glades, and digressional areas, poorly drained basins (depressions), scrub-shrub wetlands, and areas commonly referred to as marshes and wet meadow communities. Waterbodies were associated with several of the delineated wetlands. The streams ranged from small intermittent streams to moderate sized perennial streams.

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APPENDIX A

FIGURES

USGS and NWI Mapping

NRCS Soil Crossed by the TEAL Project Mapping

APPENDIX B

TABLES

B-1 SOILS CROSSED BY THE PROJECT

APPENDIX C

DATA FORMS, PHOTOGRAPHS AND WETLAND DELINEATION MAPPING

WETLAND AND WATERBODY SUMMARY FORMS
WETLAND DETERMINATION FORMS
OEPA FORMS (ORAM, HHEI, QHEI)
PHOTOGRAPHS
NATURAL RESOURCE MAPS
USGS RESOURCE MAPS