Wetland and Waterbody Delineation Report

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Highland, Adams, Pike and Scioto Counties, Ohio

Prepared for

AEP TRANSMISSION

An AEP Company

BOUNDLESS ENERGY

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1 Introduction

This wetland and waterbody delineation report (Report) summarizes the results of the wetland and waterbody delineation surveys conducted in Highland, Adams, Pike and Scioto counties by Jacobs Engineering Group, Inc. (Jacobs) for AEP Ohio Transmission Company, Inc.'s (AEP) Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project (Project). AEP is proposing to rebuild approximately 52 miles of existing 138 kV transmission line within existing AEP right-of-way (ROW) with few exceptions (minor shifts to meet AEP's reliability standards for the transmission line). In addition, a new switch structure is proposed near Sinking Springs, OH. The 138 kV overhead electric transmission line starts at the Hillsboro Station and extends generally southeast, ending at the Millbrook Park Station. The overall Project alignment is depicted on the Figure 1 Overview Map. Jacobs conducted environmental surveys in September through October 2019 and follow-up surveys in January 2020 and December 2020 to collect supplemental data. The environmental survey corridor (ESC), which included AEP's existing right-of-way (ROW), was 100 feet wide in the northwesternmost 4.8 miles, and 200 feet wide throughout the remaining extent of ROW.

This wetland and waterbody delineation report contains the following components:

- Figure 1 provides an overview map of the ESC overlain on U.S. Geological Survey (USGS) topographic maps.
- Figures 2-1 through 2-110 show U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, National Wetland Inventory (NWI) information, National Hydrology Dataset (NHD) information, and Federal Emergency Management Agency (FEMA) floodplain information. Table 3-1 (in Table Appendix) lists the soils types identified within the ESC.
- Figures 3-1 through 3-110 provide the location of all features mapped during the delineation by Jacobs' biologists within the ESC. This includes all wetlands, data points, waterbodies, and ponds. Tables 4-1, 4-2, 4-3, 4-4, and 4-5 provide feature summary information for all wetlands, streams, and ponds delineated within the ESC.
- U.S. Army Corps of Engineers (USACE) wetland determination field data forms are in Appendix A.
- Ohio Rapid Assessment Method for Wetlands (ORAM) two-page forms are in Appendix B.
- Qualitative Habitat Evaluation Index (QHEI) stream data forms for each stream identified with a drainage area of 1 square mile or greater are in Appendix C.
- Primary Headwater Habitat Evaluation Index (HHEI) stream data forms for each stream identified with a drainage area less than 1 square mile are in Appendix D.
- Representative photographs of OAC Chapter 3745-1 streams are in Appendix E.
- Jacobs' Open Water/Pond data forms for each open water feature identified are in Appendix F.

2 Background Information

This section provides a general description of the Project environmental survey corridor and methodologies used during the wetland and waterbody delineation field surveys.

2.1 Project Area

The Project is located in Highland, Adams, Pike and Scioto Counties, Ohio. The ESC begins at Hillsboro Station, approximately 370 feet northwest of County Road 7 in Highland County (near 39.17341 latitude, -83.67781 longitude), and extends southeast terminating at Millbrook Park Station, located south of County Route 52 in Scioto County (near 38.75322 latitude, -82.92894 longitude; Figure 1). The ESC is approximately 52 miles long, 100 feet wide in the northwestern most 4.8 miles, and 200 feet wide throughout the remaining extent of the ROW. The survey corridor totaled approximately 1,193 acres.

Review of the USGS 7.5 minute topographic maps of the area indicated that multiple ditches, streams, and rivers drain the ESC, including Elm Run, Elk Run, Middle Fork Ohio Brush Creek, Baker Fork, Scioto River, Candy Run, Munn Run, and multiple unnamed tributaries of these waterways. The Project area has a rolling topography, with elevations ranging between 600 feet and 1,200 feet above mean sea level throughout the ESC (Figure 1).

Land use and natural communities observed within the ESC includes agricultural land, roadways, industrial (including electrical substations), residential, old field, upland forest, upland scrub shrub, palustrine emergent (PEM) wetland, and palustrine scrub-shrub (PSS) wetland, in addition to the previously identified waterbodies.

2.1.1 Annual Precipitation

Rainfall data for weather stations in the Agricultural Applied Climate Information System (AgACIS) was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Hillsboro, West Union 6 ENE, Piketon, and Portsmouth were the nearest weather stations with both historical and recent precipitation records. Precipitation recorded in the Project area indicated above normal annual precipitation totals for all weather stations in 2019 and 2020. Table 2-1 presents the climatic conditions for Highland, Adams, Pike and Scioto Counties. These were taken into consideration when conducting the wetland delineation.

TABLE 2-1: Recent Precipitation Data

Hillsboro to Millbrook Park 138kV Transmission Line Rebuild Project

Precipitation Data[1]	September 2019	October 2019	Annual Totals 2019	January 2020	December 2020	Annual Totals 2020
Highland County						
Hillsboro, OH Monthly Total Precipitation	0.49	4.09	57.14	2.35	3.06	50.85
Hillsboro, OH Monthly Total Precipitation Normal	3.13	3.05	42.56	3.13	3.25	42.56
Hillsboro, OH Monthly climatic condition	below normal	above normal	above normal	below normal	below normal	above normal
Adams County						
West Union 6 ENE, OH Monthly Total Precipitation	0.54	5.16	57.36	2.89	2.27	48.11
West Union 6 ENE, OH Total Precipitation Normal	3.01	3.17	44.39	3.33	3.42	44.39
West Union 6 ENE, OH Monthly climatic condition	below normal	above normal	above normal	below normal	below normal	above normal

Pike County						
Piketon, OH Monthly Total Precipitation	0.91	3.79	51.28	2.60	2.23	48.63
Piketon, OH Total Precipitation Normal	2.77	2.90	40.43	3.17	3.31	40.43
Piketon, OH Monthly climatic condition	below normal	above normal	above normal	below normal	below normal	above normal
Scioto County						
Portsmouth, OH Monthly Total Precipitation	0.77	6.36	54.72	3.47	3.15	46.30
Portsmouth, OH Total Precipitation Normal	2.67	2.64	40.88	3.05	3.23	40.88
Portsmouth, OH Monthly climatic condition	below normal	above normal	above normal	above normal	below normal	above normal

Source: AgACIS, 2021
[1]Displayed in inches

2.1.2 Drainage Basins

The ESC crosses four 8-digit Hydrologic Unit Code (HUC) watersheds, including Little Scioto-Tygarts (05090103), Lower Scioto (05060002), Ohio Brush-Whiteoak (05090201), and Paint (05060003). The ESC crosses fifteen 12-digit HUCs, as outlined in Table 2-2 (USGS, 2020).

TABLE 2-2: HUCs Crossed by the Project

Hillsboro – Millbrook Park 138 kV Transmission Line Rebuild Project

HUC 12-Digit Code	HUC 12-Digit Name
Baker Fork	050902010303
Big Run-Scioto River	050600021602
Camp Creek	050600021601
Chenoweth Fork	050600021205
Elk Run	050902010302
Headwaters Ohio Brush Creek	050902010301
Headwaters Rocky Fork	050600030503
Little East Fork Ohio Brush Creek-Ohio Brush Creek	050902010501
Long Run	050901030602
Middle Fork Ohio Brush Creek	050902010304
Miller Run-Scioto River	050600021603
Munn Run-Ohio River	050901030606
Rarden Creek	050600021502
South Fork Rocky Fork	050600030501
Wards Run-Little Scioto River	050901030605

Source: USGS 2020

2.1.3 Navigable Waters Protection Rule

The United States Environmental Protection Agency (USEPA) and the Department of the Army published the Navigable Waters Protection Rule on April 21, 2020 (33 CFR Part 328, effective June 22, 2020). In this final rule, the agencies interpret the term “waters of the United States” to encompass: “the territorial seas and traditional navigable waters (TNWs); perennial and intermittent tributaries that contribute surface water flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters” (USEPA and USACE, 2020). The final rule has not modified the definition of TNWs. One TNW, the Scioto River, crosses the Project ESC.

2.1.4 Nationwide Permits – Ohio 401 Water Quality Certification

The USACE issued its final rule on January 13, 2021, modifying and reissuing 12 existing nationwide permits (NWPs) and issuing four entirely new NWPs, which went into effect on March 15, 2021 (Schirra, 2021). The USACE determined that the Ohio Environmental Protection Agency waived its certification for the 2021 NWPs, and therefore there is no corresponding 401 WQC permitting obligation for the 16 NWPs, including NWP 57 – Overhead Utilities. The status of Ohio's 401 WQC requirements for specific NWPs may be subject to change and should be reviewed for permitting purposes as needed.

3 Wetland and Waterbody Delineation

3.1 Desktop Review

Prior to conducting the field investigations, Jacobs reviewed the following resources to identify the potential for wetlands and streams within the ESC:

- Aerial photo-based maps (ArcGIS Online "World Imagery" Basemap (AGOL, 2019a)
- USGS topographic maps (ArcGIS Online "USA Topo" Basemap (AGOL, 2019b)
- NRCS Web Soil Survey (NRCS, 2019)
- NWI maps (USFWS, 2019a)
- National Hydrography Dataset (NHD) (USGS, 2019)

According to the NRCS soil surveys of Highland, Adams, Pike and Scioto Counties (NRCS, 2019), 139 soil map units are crossed by the ESC. Of the 139 soil map units, 121 are listed as non-hydric, 16 are listed as predominately non-hydric, and two are listed as predominantly hydric (Figure 2-1 to 2-110; Table 3-1 in Table Appendix). NRCS data indicated that non hydric soils comprised 1,105 acres, which is 93 percent of the ESC. Seventy-eight acres or 7 percent is comprised of predominantly non-hydric soils, while 10 acres or 1 percent is comprised of predominantly hydric soils.

Generally, hydric soils are those soils that indicate through their color and structure that they have experienced dominantly reducing (i.e. oxygen poor) conditions. Oxygen-poor conditions result from inundation and/or saturation by water. Partially hydric soils have both hydric and non-hydric soil components identified in the mapped soil unit.

NWI data was obtained from the USFWS for review of potential wetlands that may occur within the ESC. The NWI data (USFWS, 2019) identifies the type of wetland or open water present at a location using the USFWS classification system (Cowardin et al., 1979). The NWI data indicates that there are mapped freshwater wetlands, freshwater ponds, and riverine systems present within the ESC including PEM1A, PEM1F, PFO1A, PSS1A, PUBGh, PUBGx, R2UBH, R2UBHh, R2UBHx, R4SBC, R4SBCx, and R5UBH (Figure 2-1 to 2-110) (USFWS 2019). The presence of an NWI feature is not a definitive indicator that a wetland or waterbody is present. The information on NWI maps is obtained largely from aerial interpretation, may be outdated, and is only sporadically field-checked. Additional details regarding the mapped NWI wetlands within the ESC are provided in Table 3-2 (Table Appendix).

As shown on the FEMA floodplain panels (Figures 2-1 to 2-110), the ESC crosses the FEMA-mapped 100-year floodplain of seven waterbodies including: Elm Run, Elk Run, Middle Fork Ohio Brush Creek, Baker Fork, Scioto River, Candy Run, and Munn Run. In addition, the ESC crosses one mapped FEMA floodway, the Scioto River (FEMA, 2020).

3.2 Field Survey Methodology

From September through October 2019, Jacobs' biologists surveyed the majority of the ESC by walking the corridor and evaluating for wetlands and other waterbodies. The remaining portions of the ESC were surveyed in January 2020 and December 2020.

The boundaries of each wetland and waterbody within the ESC were delineated and recorded using handheld global positioning system (GPS) units. For streams identified within the Project area, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary.

Wetland, stream, and pond data were recorded on USACE Regional Supplement wetland determination data forms, Headwater Habitat Evaluation Index (HHEI) forms and Qualitative Habitat Evaluation Index (QHEI)

forms, and Jacobs' standard open water/pond data forms, respectively. All other land use, habitat, and other supplemental data was collected in a field notebook during the environmental survey.

3.2.1 Wetland Delineation

Wetland boundaries were field-delineated according to Section 404 of the Clean Water Act (CWA) and the routine onsite methodology described in the Technical Report Y-87-1 *Corps of Engineers' Wetlands Delineation Manual* and subsequent guidance documents (USACE, 1987) and according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012*)*. Representative wetland and upland data points were recorded during the wetland delineation to determine the presence/absence of wetlands and/or document upland conditions within the Project area. Upland data points were determined not to be within wetlands because they did not have positive indicators of one or more of the three wetland criteria: hydrophytic vegetation, wetland hydrology, and hydric soils.

Wetland quality was evaluated using the OEPA Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000). Jacobs commonly assesses each Cowardin component of a wetland complex with a separate USACE wetland determination form. However, the ORAM evaluates the larger wetland complex as a unit and as a result each wetland component within a complex will receive the same ORAM score.

3.2.2 Stream Assessment

Jurisdictional streams were identified as those waters that possessed a continuously defined bed and bank, OHWM indicators, and lacked a dominance of upland vegetation in the channel. Per USACE guidance, the OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE, 2005). Channels that parallel a roadway or railroad were identified as upland drainage features and were not considered to be jurisdictional unless they had an identifiable OHWM, were identified on the USGS topographic map, or represented a presumed relocation of a natural channel.

During the field survey, functional stream assessments were conducted using the methods described in the OEPA's Methods for Assessing Habitat in Flowing Waters: Using OEPA's *Qualitative Habitat Evaluation Index* (OEPA, 2006) and in the OEPA's Field Methods for Evaluating Primary Headwater Streams (OEPA, 2018). The Qualitative Habitat Evaluation Index (QHEI), is used to characterize larger streams (drainage areas greater than 1 square mile), while the Primary Headwater Habitat Evaluation Index (HHEI) is appropriate for first-order and second-order headwater streams (drainage areas less than 1 square mile).

4 Field Survey Results

Jacobs' biologists surveyed the ESC in September through October 2019 as well as follow-up surveys in January 2020 and December 2020 by walking the corridor and evaluating for wetlands and other waters of the U.S. A total of 72 wetlands, 219 streams, and 14 ponds were delineated within the ESC. The features identified within the ESC are displayed and identified on the Delineated Features Map (Figure 3-1 through Figure 3-110).

Detailed information for wetland, stream, and pond features within the ESC is provided in Tables 4-1, 4-2, and 4-3 respectively. Jacobs defaults to the USACE and OEPA for the final determination of hydrologic connectivity and jurisdiction.

4.1 Wetlands

Seventy-two wetlands totaling 6.32 acres, ranging in size from less than 0.01 to 0.85 acre, were delineated within the ESC. The reported wetland acreage only corresponds to areas delineated within the ESC as some wetlands extended beyond the survey boundary. Of the 72 wetlands, 66 wetlands were identified as PEM wetlands, four were PSS wetlands, and two were PEM/PSS complexes. Summary information for each delineated wetland within the ESC is provided in Table 4-1 (in Table Appendix). Completed USACE wetland and upland forms are provided in Appendix A. Representative photographs (four cardinal directions and soil) were taken of each wetland during the field survey and are provided with the forms in Appendix A.

4.1.1 Wetland ORAM Results

A total of 49 Category 1 wetlands, 14 Category 2 wetlands, and nine Modified Category 2 wetlands were identified within the ESC. No Category 3 wetlands were identified within the ESC. Table 4-4 provides summary information regarding wetlands identified within the ESC, and the ORAM forms are included in Appendix B.

Of the 49 Category 1 wetlands, 46 were classified as PEM wetlands, two were classified as PSS wetlands, and one was classified as a PEM/PSS complex. These wetlands were classified as Category 1 wetlands based on ORAM scores ranging from 6 to 29.5. Generally, these wetlands scored low due to a variety of factors such as small size, intensity of surrounding land use, narrow buffer areas, disturbance to soils and hydrology, the lack of secondary growth vegetation, and the presence of invasive species.

Fourteen Category 2 wetlands and nine Modified Category 2 wetlands were identified within the ESC. Of the 14 Category 2 wetlands, 12 were classified as PEM wetlands, one was classified as a PSS wetland, and one was classified as a PEM/PSS wetland complex. Of the nine Modified Category 2 wetlands, eight were classified as PEM wetlands and one was classified as a PSS wetland. Category 2 wetlands were based on ORAM scores ranging from 30 to 44. Generally, the Category 2 wetlands exhibited medium upland buffers, very low to moderately high intensive surrounding land use (e.g. second growth forest, residential, fenced pasture), sparse to moderate percentage of invasive species, and had habitat and hydrology generally recovered or recovering from previous manipulation due to clear-cutting, shrub/sapling removal, and other disturbances, or with no disturbance at all.

No Category 3 wetlands were identified within the ESC.

TABLE 4-4: Wetland Summary Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland Type	ORAM Category				Number of Wetlands	Acreage within ESC
	Category 1	Category 2	Modified 2	Category 3		
PEM	46	12	8	0	66	5.20
PSS	2	1	1	0	4	0.21
PEM/PSS	1	1	0	0	2	0.91
Totals	**49**	**14**	**9**	**0**	**72**	**6.32**

4.2 Streams

A total of 219 streams, totaling 51,228 linear feet, were identified within the ESC. Of the 219 streams, 108 streams were identified as ephemeral streams, 86 were intermittent streams, and 25 were perennial streams. A total of 185 streams were assessed using the HHEI methodology (drainage area less than 1 mi^2), nine streams were assessed using the QHEI methodology (drainage area greater than 1 mi^2), and 25 streams have been identified with an existing designated use as outlined in the Ohio Administrative Code (OAC), OAC-3745-1-07. Table 4-2 (in Table Appendix) provides detailed information on the delineated streams.

4.2.1 QHEI Results

Nine streams, totaling 2,375 linear feet within the ESC, were evaluated using the QHEI methodology. One stream was classified as Poor Warmwater, four streams were classified as Fair Warmwater, and four were classified as Good Warmwater. Table 4-5 provides a summary of the QHEI results for streams identified within the ESC, and completed QHEI forms and representative photographs are provided in Appendix C.

TABLE 4-5: QHEI Stream Summary Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Flow Regime	QHEI Narrative Category					Number of Streams	Length (feet) within ESC
	Very Poor Warmwater	Poor Warmwater	Fair Warmwater	Good Warmwater	Excellent Warmwater		
Intermittent	0	0	1	2	0	3	651
Perennial	0	1	3	2	0	6	1,724
Totals	**0**	**1**	**4**	**4**	**0**	**9**	**2,375**

4.2.2 HHEI Results

A total of 185 headwater streams, totaling 42,080 linear feet within the ESC, were evaluated using the HHEI methodology. Table 4-6 provides a summary of the HHEI results for streams identified within the ESC, and completed HHEI forms and representative photographs are provided in Appendix D. Note that one stream, Stream HM-143, was not assessed due to concerns of safely accessing the site (e.g., steep ravine/drop-off).

TABLE 4-6: HHEI Stream Summary Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Flow Regime	HHEI Category[1]							Number of Streams	Length (feet) within ESC[2]
	Modified Ephemeral	Ephemeral	Modified Small Drainage Warmwater	Small Drainage Warmwater	Spring Water	Conduct Biological Assessment	*Not Assessed*		
Ephemeral	46	24	16	21	0	1	0	108	21,520
Intermittent	10	8	25	25	2	1	1	72	19,125
Perennial	0	0	4	1	0	0	0	5	1,435
Totals	**56**	**32**	**45**	**47**	**2**	**2**	**1**	**185**	**42,080**

[1]See Table 18 in *Field Methods for Evaluating Primary Headwater Streams in Ohio* (OEPA 2018).

[2]Numbers in this table have been rounded for presentation purposes. Thus, the totals may not reflect the exact sum of the addends in all cases.

4.2.3 Ohio Administrative Code Chapter 3745-1 Designated Use

The OEPA has established water use designation for streams throughout Ohio as outlined in the Ohio Administrative Code (OAC) Chapter 3745-1-07. There were 25 delineated stream segments that had a designated use as regulated under OAC Chapter 3745-1. These waterbodies were not assessed as Jacobs defaults to the assigned OAC designations. Table 4-7 provides a summary of waterbodies that cross the proposed alignment that have an assigned OAC designation and representative photographs are provided in Appendix E.

TABLE 4-7: OAC Chapter 3745-1 Stream Designations

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Stream Name	OAC Designation
Scioto River Drainage Basin	
Bear Creek	WWH
Bettys Creek	WWH
Bull Run	WWH
Big Run	WWH
Camp Creek	WWH
Candy Run	WWH
Drake Run	WWH
Devers Run	WWH
Left Fork Camp Creek	CWH
Rock Run	WWH
Rocky Fork	EWH
Scioto Brush Creek	WWH
Scioto River	WWH
Slate Run	WWH
South Fork Rocky Fork	EWH
Straight Fork	WWH
Southeast Ohio Tributaries Drainage Basin	
Bonser Run	WWH
Long Run	WWH
Munn Run	WWH
Southwest Ohio Tributaries Drainage Basin	
Baker Fork	EWH
Elk Run	WWH
Elm Run	WWH
Middle Fork Ohio Brush Creek	WWH
Straight Creek	WWH

Source: OEPA, 2017
WWH = warmwater habitat
CWH = cold water habitat
EWH = exceptional water habitat

4.3 Ponds/Open Water

Fourteen ponds totaling 2.07 acres were identified within the ESC. Table 4-3 (in Table Appendix) provides detailed information on the delineated ponds. Jacobs' Pond/Open Water forms with representative photographs are provided in Appendix F.

5 Protected Species

Jacobs reviewed the USFWS Ohio Ecological Services Office website (USFWS, 2017b) for information concerning which federally listed species were known to occur, or to potentially occur, in Highland, Adams, Pike, and Scioto Counties, Ohio. In addition, Jacobs was provided with Ohio Natural Heritage Database data from the Ohio Department of Natural Resources (ODNR) Division of Wildlife (DOW), on known occurrences of federally listed and state-listed species within a one-mile radius of the Project area.

5.1 Federal and State Agency Coordination Summary

Table 5-1, in the Table Appendix, includes the federally-listed species identified by the USFWS (USFWS, 2017b) as occurring, or potentially occurring, in Highland, Adams, Pike, and Scioto Counties, Ohio along with other habitat observations and information on recorded locations, if applicable. Table 5-1 also outlines state-listed species identified by the ODNR Division of Wildlife (DOW) (ODNR, 2020b) as being located within a one-mile radius of the Project area.

5.2 Protected Species Summary

Coordination with ODNR-DOW was initiated to obtain Environmental Review and Ohio Natural Heritage Database records within a 1-mile buffer area around the Project (ODNR-DOW, 2020a). Current information on the species provided through USFWS (USFWS, 2020) and the ODNR-DOW Ohio Natural Heritage Database is provided in Table 5-1 (Table Appendix).

A consultation request was submitted to the USFWS on September 9, 2019 and their response was received on December 18, 2019. USFWS stated that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the project area. The USFWS also confirmed that the project area lies within the range of two federally-listed bat species (Indiana bat and northern long-eared bat), one mussel species (rayed bean), and two vascular plants (Virginia spiraea and running buffalo clover) (Table 5-1).

Portions of southern Scioto County are in Indiana bat hibernaculum buffers and roost tree buffers. The northern section of the line in Highland County is within many capture buffers of male and female Indiana bats and roost trees. Portions of the project are also within capture buffers of northern long-eared bats. The USFWS requested that AEP provide additional information regarding the extent of tree clearing within the proposed portions of the Project in Scioto and Highland Counties.

The endangered rayed bean is a freshwater mussel known to occur in Scioto Brush Creek and the Scioto River, both of which are spanned by the transmission line. The rayed bean prefers substrates of gravel and sand, and they are often associated with, and buried under the roots of, vegetation, including water willow (*Justicia americana)* and water milfoil (*Myriophyllum sp*.). The endangered clubshell (*Pleurobema clava*) and northern riffleshell (*Epioblasma torulosa rangiana*) mussels are also known to occur in the Scioto River. USFWS states that if the project directly or indirectly impacts any of the mussel streams above, they recommend a presence/absence mussel survey. Additionally, if any impact to native riparian vegetation is proposed they recommend further coordination with USFWS.

Known populations of *Virginia spiraea* occur in Ohio along long-established gravel bars in Scioto Brush Creek in Scioto County. The current alignment occurs in a township where this species is known to occur but does not cross the Scioto Brush Creek in this township. USFWS states that the current alignment does not impact this species; however, if the project proposes any re-alignments in this area then further coordination with USFWS will be required.

Lastly, the proposed Project also lies within the range of running buffalo clover. This species was recently proposed for delisting due to recovery. This species can potentially be found in partially shaded woodlots, mowed areas, and along streams, trails, and ROWs.

Consultation with USFWS is currently ongoing and recommendations for protection or minimization measures for federally listed species potentially present within the Project area will be provided.

A consultation request was submitted to the ODNR on September 9, 2019 and their e-mail response was received on January 22, 2020. The western 15,000 feet of the Project route, and the portion of the Project route between the Ohio River and the Scioto River, are within the vicinity of Indiana bat records. ODNR stated that if suitable Indiana bat habitat occurs within these project areas, it is recommended that trees be conserved. If trees must be cut or removed, the ODNR recommended cutting to occur between October 1 and March 31. The remainder of the Project route may not have records of Indiana bat, however, is still within the range of Indiana bat. If suitable habitat occur within the rest of the Project area and trees must be cut, ODNR recommended mist net surveys be conducted for the Indiana bat between June 1 and August 15, prior to any tree cutting.

According to ODNR, the Project must not have an impact on freshwater native mussels within the Project area and per the Ohio Mussel Survey Protocol (ODNR-DOW, 2016a), all Group 2, 3, and 4 streams require mussel surveys. No in-stream work is currently proposed during construction activities and will not directly impact streams crossed by the Project area. Therefore, mussel surveys will not likely be required. The ODNR-DOW recommends no in-water work in any perennial stream from April 15 through June 30 to reduce impacts to indigenous species and their habitat. Because no in-water work is proposed in any perennial stream within the Project area, the Project is not likely to impact threatened or endangered aquatic species.

The Project is within the range of timber rattlesnake, eastern spadefoot, and mud salamander. ODNR recommended that a DOW-approved herpetologist conduct a habitat suitability survey along the Project route to determine if suitable habitat exists for these species. Habitat surveys were completed in January 2021 and potentially suitable habitat was identified for the timber rattlesnake and mud salamander. No potentially suitable habitat was identified for the eastern spadefoot. Results have been submitted to ODNR and an avoidance/minimization plan will be developed and implemented.

Two bird species, including the lark sparrow and loggerhead shrike, are within the range of the Project. Habitat surveys were completed in January 2021 with suitable habitat identified for both species. If lark sparrow habitat will be impacted, ODNR recommends that construction be avoided in their nesting habitat during the period of May 1 to June 30. If loggerhead shrike habitat is present, construction should be avoided in their nesting habitat during April 1 to August 1. If suitable habitat cannot be avoided during nesting season, then presence/absence surveys will be conducted.

6 Conclusion

Jacobs conducted environmental surveys of the Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project from September through October 2019 and conducted subsequent surveys January 2020 and December 2020. A total of 72 wetlands, 219 streams, and 14 ponds were delineated within the ESC. The 72 wetlands, totaling 6.32 acres within the ESC, included 66 PEM wetlands, four PSS wetlands, and two PEM/PSS wetland complexes. Of the 72 wetlands, 49 were identified as Category 1 wetlands, 14 were identified as Category 2 wetlands, and nine were identified as Modified Category 2 wetlands. None were identified as Category 3 wetlands.

The 219 streams, totaling 51,228 linear feet, identified within the ESC include 108 ephemeral streams, 86 intermittent streams, and 25 perennial streams. A total of 185 streams were assessed using the HHEI methodology (drainage area less than 1 mi^2) and nine streams were assessed using the QHEI methodology (drainage area greater than 1 mi^2). There were 25 streams that had a designated use as regulated under OAC 3745-1. These waterbodies were not assessed as Jacobs defaults to the assigned OAC designations. While the jurisdictional status of these identified features is provided with tables of this report, the USACE and OEPA will provide the final determination of hydrologic connectivity and jurisdiction. Coordination with the USACE and OEPA is recommended prior to the submittal of any permit or construction activities, dependent on the planned impacts to wetlands and waterbodies.

The results of the environmental resource survey described in this report and conducted by Jacobs are limited to what was identified within the ESC, as depicted in Figure 3-1 through Figure 3-110. The information contained in this wetland delineation report is for a study area that may be much larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed in this report may likely not constitute the actual impacts of the Project at the time of construction. If permits are determined to be necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

The wetland and waterbodies delineation field survey results presented within this report apply to the site conditions at the time of our assessment. Changes within the environmental survey corridor that may occur with time due to natural processes or human impacts at the Project site or on adjacent properties, could invalidate the findings of this report, especially if Jacobs is unaware and has not had the opportunity to revisit the Project survey area. Additionally, changes in applicable standards and regulations may also occur as a result of legislation or the expansion of knowledge over time. Therefore, the findings of this wetland and waterbodies delineation report may be invalidated, wholly or in part, by changes that are beyond the control of Jacobs.

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Table Appendix

TABLE 3-1: Mapped Soil Units

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
Adams County			
BkD	Berks silt loam, 15 to 25 percent slopes	Non-Hydric	5.36
BrC2	Bratton-Opequon complex, 8 to 15 percent slopes, eroded	Non-Hydric	17.24
CrB	Crider silt loam, 1 to 6 percent slopes	Non-Hydric	0.07
Ge	Gessie loam, frequently flooded	Non-Hydric	0.74
LbC	Latham silt loam, 8 to 15 percent slopes	Non-Hydric	4.86
LbD2	Latham silt loam, 15 to 25 percent slopes, eroded	Non-Hydric	2.81
No	Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	Predominantly Non-Hydric	4.67
OmB	Omulga silt loam, 1 to 6 percent slopes	Non-Hydric	2.42
OpD2	Opequon silty clay loam, 15 to 25 percent slopes, eroded	Non-Hydric	9.30
OwB	Otwell silt loam, 1 to 6 percent slopes	Non-Hydric	0.67
ScF	Shelocta-Brownsville association, very steep	Non-Hydric	0.17
ShE	Shelocta-Berks association, steep	Non-Hydric	10.73
ShF	Shelocta-Berks association, very steep	Non-Hydric	24.38
SkF	Shelocta-Brownsville association, very steep	Non-Hydric	2.30
SmD	Shelocta-Muse association, hilly	Non-Hydric	8.62
SoE	Shelocta-Muse-Colyer association, steep	Non-Hydric	43.49
Sp	Skidmore gravelly loam, occasionally flooded	Predominantly Non-Hydric	2.69
TkA	Tilsit silt loam, 0 to 3 percent slopes	Non-Hydric	15.17
TrC	Trappist silt loam, 8 to 15 percent slopes	Non-Hydric	1.69
TsF	Trappist-Shelocta association, steep	Non-Hydric	1.99
WgC	Wernock silt loam, 8 to 15 percent slopes	Non-Hydric	2.79
Highland County			
Ag	Algiers silt loam	Predominantly Non-Hydric	5.90
BeC2	Beasley silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	1.60
BeD2	Beasley silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	1.79
BgF	Berks-Muskingum channery silt loams, 18 to 35 percent slopes	Non-Hydric	6.60
BhD	Berks-Muskingum-Neotoma channery silt loams, 6 to 18 percent slopes	Non-Hydric	0.63
BhF	Berks-Muskingum-Neotoma channery silt loams, 18 to 35 percent slopes	Non-Hydric	0.74
BhG	Berks-Muskingum-Neotoma channery silt loams, 35 to 50 percent slopes	Non-Hydric	0.70
BmC2	Boston-Bratton complex, 6 to 12 percent slopes, moderately eroded	Non-Hydric	36.46
BmC3	Boston-Bratton complex, 6 to 12 percent slopes, severely eroded	Non-Hydric	2.12
BmD2	Boston-Bratton complex, 12 to 18 percent slopes, moderately eroded	Non-Hydric	19.88
BmE2	Boston-Bratton complex, 18 to 25 percent slopes, moderately eroded	Non-Hydric	0.69
BnB	Boston-Grayford silt loams, 2 to 6 percent slopes	Non-Hydric	2.36
BnB2	Boston-Grayford silt loams, 2 to 6 percent slopes, moderately eroded	Non-Hydric	4.12
BpB	Bratton silt loam, 2 to 6 percent slopes	Non-Hydric	6.45
BpB2	Bratton silt loam, 2 to 6 percent slopes, moderately eroded	Non-Hydric	14.57
BpC2	Bratton silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	21.05
BpD2	Bratton silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	1.74
ChB	Cincinnati silt loam, 2 to 6 percent slopes	Non-Hydric	6.50
ChC2	Cincinnati silt loam, 6 to 12 percent slopes, eroded	Non-Hydric	0.08
CoF	Colyer-Trappist complex, 18 to 35 percent slopes	Non-Hydric	1.63

TABLE 3-1: Mapped Soil Units

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
CoG	Colyer-Trappist complex, 35 to 50 percent slopes	Non-Hydric	1.40
DuA	Dubois silt loam, 0 to 2 percent slopes	Predominantly Non-Hydric	2.52
Ee	Eel silt loam, 0 to 2 percent slopes, occasionally flooded	Predominantly Non-Hydric	3.95
GbG	Gasconade flaggy silty clay loam, 35 to 50 percent slopes	Non-Hydric	4.09
Gn	Genesee silt loam, 0 to 2 percent slopes, occasionally flooded	Predominantly Non-Hydric	11.89
HbB	Haubstadt silt loam, 2 to 6 percent slopes	Non-Hydric	12.37
HbC2	Haubstadt silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	5.58
HbD2	Haubstadt silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	0.86
HkC2	Hickory silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	1.26
HkD2	Hickory silt loam, Illinoian Till Plain, 12 to 18 percent slopes, eroded	Non-Hydric	7.78
HkE2	Hickory silt loam, 18 to 25 percent slopes, moderately eroded	Non-Hydric	5.98
HkF2	Hickory silt loam, 25 to 35 percent slopes, moderately eroded	Non-Hydric	0.64
HyD3	Hickory clay loam, 12 to 18 percent slopes, severely eroded	Non-Hydric	6.39
HyE3	Hickory clay loam, 18 to 25 percent slopes, severely eroded	Non-Hydric	0.66
JeD	Jessup silt loam, 12 to 18 percent slopes	Non-Hydric	2.12
JoR1A1	Jonesboro-Rossmoyne silt loams, 0 to 2 percent slopes	Predominantly Non-Hydric	0.48
JoR1B1	Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes	Non-Hydric	34.04
JoR1B2	Jonesboro-Rossmoyne silt loams, 2 to 6 percent slopes, eroded	Non-Hydric	6.90
LhB	Lawshe silty clay loam, 2 to 6 percent slopes	Non-Hydric	3.07
LhC2	Lawshe silty clay loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	1.09
LhD2	Lawshe silty clay loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	1.80
LlD3	Lawshe silty clay, 12 to 18 percent slopes, severely eroded	Non-Hydric	1.38
LoC2	Loudon silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	4.54
LoD2	Loudon silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	0.04
NdC	Negley loam, 6 to 12 percent slopes	Non-Hydric	2.19
NdD	Negley loam, 12 to 18 percent slopes	Non-Hydric	1.36
NdE	Negley loam, 18 to 25 percent slopes	Non-Hydric	4.07
NfD3	Negley clay loam, 12 to 18 percent slopes, severely eroded	Non-Hydric	1.95
NnB	Nicholson silt loam, 2 to 6 percent slopes	Non-Hydric	4.76
No	Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	Predominantly Non-Hydric	1.00
OpD2	Opequon silt loam, 6 to 18 percent slopes, moderately eroded	Non-Hydric	11.82
OpE2	Opequon silt loam, 18 to 25 percent slopes, moderately eroded	Non-Hydric	11.42
OsF2	Opequon stony silt loam, 18 to 35 percent slopes, moderately eroded	Non-Hydric	9.33
OsG	Opequon stony silt loam, 35 to 50 percent slopes	Non-Hydric	7.77
OtD3	Opequon clay, 6 to 18 percent slopes, severely eroded	Non-Hydric	11.06
OwC2	Otwell silt loam, 6 to 12 percent slopes, moderately eroded	Non-Hydric	2.72
OwD2	Otwell silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	0.47
OwE2	Otwell silt loam, 18 to 25 percent slopes, moderately eroded	Non-Hydric	1.52
OwF	Otwell silt loam, 25 to 35 percent slopes	Non-Hydric	1.54
Rn	Ross silt loam, 0 to 2 percent slopes, occasionally flooded	Predominantly Non-Hydric	0.91
RpC2	Rossmoyne silt loam, 6 to 12 percent slopes, eroded	Predominantly Non-Hydric	25.97
RpD2	Rossmoyne silt loam, 12 to 18 percent slopes, moderately eroded	Non-Hydric	0.31
SaB	Sardinia silt loam, 2 to 6 percent slopes	Predominantly Non-Hydric	0.16

TABLE 3-1: Mapped Soil Units

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
SeF	Shelocta-Berks association, very steep	Non-Hydric	1.39
Sh	Shoals silt loam, 0 to 2 percent slopes, frequently flooded, brief duration	Predominantly Non-Hydric	3.38
Sn	Sloan silt loam	Predominantly Hydric	4.13
TrE	Trappist silt loam, 18 to 25 percent slopes	Non-Hydric	1.64
TsC2	Trappist-Muse silt loams, 6 to 12 percent slopes, moderately eroded	Non-Hydric	0.43
TsD2	Trappist-Muse silt loams, 12 to 18 percent slopes, moderately eroded	Non-Hydric	1.73
TsF	Trappist-Shelocta association, steep	Non-Hydric	0.39
TwE	Trappist-Shelocta association, steep	Non-Hydric	0.90
WlD	Wellston silt loam, 12 to 18 percent slopes	Non-Hydric	1.87
WsS1B1	Westboro-Schaffer silt loams, 2 to 4 percent slopes	Predominantly Non-Hydric	0.08
Pike County			
Cf	Clifty silt loam, occasionally flooded	Non-Hydric	1.88
CoB	Coolville silt loam, 1 to 8 percent slopes	Non-Hydric	13.76
CoC	Coolville silt loam, 8 to 15 percent slopes	Non-Hydric	1.95
CpC	Coolville-Blairton association, rolling	Non-Hydric	5.43
CtC	Coolville-Rarden silt loams, 8 to 15 percent slopes	Non-Hydric	3.88
GpC	Gilpin silt loam, 8 to 15 percent slopes	Non-Hydric	7.69
GpD	Gilpin silt loam, 15 to 25 percent slopes	Non-Hydric	11.87
LhW1D1	Latham-Wharton silt loams, 15 to 25 percent slopes	Non-Hydric	42.69
RdC	Rarden silt loam, 8 to 15 percent slopes	Non-Hydric	3.97
SnF	Shelocta-Brownsville association, steep	Non-Hydric	4.29
SpF	Shelocta-Latham association, steep	Non-Hydric	30.90
TkA	Tilsit silt loam, 0 to 3 percent slopes	Non-Hydric	2.56
TsF	Trappist-Shelocta association, steep	Non-Hydric	4.75
WeB	Wernock Variant silt loam, 3 to 8 percent slopes	Non-Hydric	13.73
Scioto County			
AfD	Alford silt loam, 10 to 25 percent slopes	Non-Hydric	10.01
BeC	Berks channery silt loam, 8 to 15 percent slopes	Non-Hydric	29.92
BrF	Brownsville-Rock outcrop association, very steep	Non-Hydric	3.83
CoB	Coolville silt loam, 1 to 8 percent slopes	Non-Hydric	5.08
CpC	Coolville-Rarden silt loams, 8 to 15 percent slopes	Non-Hydric	19.83
FcA	Fitchville silt loam, 0 to 3 percent slopes	Predominantly Non-Hydric	5.11
Ge	Genesee silt loam, occasionally flooded	Non-Hydric	5.48
Ha	Haymond silt loam, occasionally flooded	Predominantly Non-Hydric	2.62
La	Landes fine sandy loam, occasionally flooded	Non-Hydric	0.83
LaGZD1	Latham-Gilpin association, hilly	Non-Hydric	28.37
Lah1C1	Latham silt loam, 8 to 15 percent slopes	Non-Hydric	1.80
Lah1D1	Latham silt loam, 15 to 25 percent slopes	Non-Hydric	17.30
LhW1D1	Latham-Wharton silt loams, 15 to 25 percent slopes	Non-Hydric	11.40
MoC2	Monongahela silt loam, 8 to 15 percent slopes, eroded	Non-Hydric	4.96
No	Nolin silt loam, 0 to 3 percent slopes, occasionally flooded	Predominantly Non-Hydric	7.04
OcB	Ockley loam, 1 to 8 percent slopes	Non-Hydric	7.92
Omu1B1	Omulga silt loam, 2 to 6 percent slopes	Non-Hydric	9.66

TABLE 3-1: Mapped Soil Units

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Symbol	Description	Hydric Classification	Acres
Omu1C1	Omulga silt loam, 6 to 12 percent slopes	Non-Hydric	6.59
Pe	Peoga silt loam, rarely flooded	Predominantly Hydric	5.64
Ro	Rossburg silty clay loam, occasionally flooded	Non-Hydric	10.01
SbB	Shelocta silt loam, 3 to 8 percent slopes	Non-Hydric	12.50
SbC	Shelocta silt loam, 8 to 15 percent slopes	Non-Hydric	1.12
SbD	Shelocta silt loam, 15 to 25 percent slopes	Non-Hydric	1.30
ScE	Shelocta-Brownsville association, steep	Non-Hydric	48.98
ScF	Shelocta-Brownsville association, very steep	Non-Hydric	208.06
Sk	Skidmore silt loam, occasionally flooded	Non-Hydric	7.11
SWLZE1	Shelocta-Wharton-Latham association, steep	Non-Hydric	20.41
TcB	Tilsit-Coolville association, undulating	Non-Hydric	8.89
W	Water	Non-Hydric	1.44
WfD	Wharton silt loam, 15 to 25 percent slopes	Non-Hydric	4.13
WpB	Wheeling-Urban land complex, 1 to 8 percent slopes	Non-Hydric	1.51
		Total:	**1,193**

TABLE 3-2: Mapped National Wetland Inventory Features

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

NWI Code	Description	Figure 3	Related Field Inventoried Resource	Comments
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-1, 3-2	Stream HM-001	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-2, 3-3	Stream HM-002	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-4	Stream HM-003	
PSS1A	Palustrine scrub-shrub, broad-leaved deciduous, temporary flooded	3-4	Upland HM-087	Upland riparian gently sloping away from Stream HM-004
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-4	Stream HM-004	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-4	Stream HM-005	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-4	Stream HM-007a	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-4	Stream HM-007a	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-4, 3-5	Stream HM-007b	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-6	Pond HM-001	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-6	Stream HM-011	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-7	Stream HM-014	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-8	Stream HM-018	Pond located outside of ESC
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-8	Stream HM-019	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-8, 3-9	Stream HM-020	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-9	Stream HM-021	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-10	Pond HM-002	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-10	Stream HM-025	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-11	Stream HM-028	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-11, 3-12	Stream HM-029	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-12	Stream HM-030	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-12	Stream HM-031	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-12, 3-13	Stream HM-032	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-13	Stream HM-034	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-14	Stream HM-035	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-17	Stream HM-041	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-18	Pond HM-003	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-18	Stream HM-043	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-20	none	NWI is associated with a stream just outside of the ESC
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-21	Stream HM-047	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-23, 3-24	Stream HM-052	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-24	Stream HM-054	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-25	Stream HM-056	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-26	Stream HM-058	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-28	Upland HM-090	Upland pasture, no sign of wetland
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-29	Stream HM-064	

TABLE 3-2: Mapped National Wetland Inventory Features

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

NWI Code	Description	Figure 3	Related Field Inventoried Resource	Comments
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-30	Stream HM-070	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-30	Stream HM-072	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-31, 3-32	Stream HM-073	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-33	Stream HM-074	
PEM1A	Palustrine emergent, persistent, temporary flooded	3-33, 3-34	Upland HM-091	Upland steep hillslope, no sign of wetland
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-34	Stream HM-075	
PEM1A	Palustrine emergent, persistent, temporary flooded	3-34, 3-35	Upland HM-092	Upland hillside, no sign of wetland
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-34, 3-35	Stream HM-076	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-35	Wetland HM-032	
PEM1A	Palustrine emergent, persistent, temporary flooded	3-35	Wetland HM-033	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-37, 3-38	Stream HM-083	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-38, 3-39	Stream HM-087	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-39	Stream HM-088	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-40	Wetland HM-037	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-41, 3-42	Stream HM-092	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-42	Stream HM-093	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-42, 3-43	Stream HM-096	
PEM1A	Palustrine emergent, persistent, temporary flooded	3-43	Wetland HM-042	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-44	Stream HM-100	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-44	Stream HM-103	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-45	Stream HM-106	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-46	Stream HM-110	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-46, 3-47	Stream HM-113	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-47	Stream HM-115	
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	3-47, 3-48	Wetland HM-046	
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	3-49	Pond HM-007	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-49	Stream HM-117	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-50	Stream HM-118	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-50, 3-51	Stream HM-119	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-51, 3-52	Stream HM-120	
PEM1F	Palustrine emergent, persistent, semipermanently flooded	3-52	Pond HM-008	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-53	Stream HM-122	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-54, 3-55	Stream HM-126	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-56	Stream HM-127	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-56	Stream HM-128	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-57	Stream HM-129	

TABLE 3-2: Mapped National Wetland Inventory Features

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

NWI Code	Description	Figure 3	Related Field Inventoried Resource	Comments
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-59	Pond HM-009	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-59, 3-60	Stream HM-131	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-61	Stream HM-132	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-63	Stream HM-134	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-64	Stream HM-230	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-64, 3-65	Stream HM-232	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-65	Stream HM-234	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-67	Stream HM-135	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-69	Stream HM-140	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-69, 3-70	Stream HM-142	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-72	Stream HM-144	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-73	Stream HM-148	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-73	Stream HM-152	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-74	Stream HM-154	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-75, 3-76	Stream HM-159	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-76, 3-77	Stream HM-163	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-78	Stream HM-166	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-79	Stream HM-167	
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	3-81	Pond HM-011	
PUBGx	Palustrine unconsolidated bottom, intermittently exposed, excavated	3-81	Wetland HM-061	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-82	Stream HM-170	
PFO1A	Palustrine forested, broad-leaved deciduous, temporary flooded	3-84	Stream HM-171	
R4SBCx	Riverine intermittent, streambed, seasonally flooded, excavated	3-84	Stream HM-171	
R2UBHh	Riverine lower perennial, unconsolidated bottom, permanently flooded, diked/impounded	3-85	Stream HM-174	
R5UBH	Riverine unknown perennial, unconsolidated bottom, permanently flooded	3-85	Stream HM-174	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-86, 3-87	Stream HM-175	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-89	Stream HM-178	
R2UBH	Riverine lower perennial, unconsolidated bottom, permanently flooded	3-89, 3-90	Stream HM-179	
PUBGh	Palustrine unconsolidated bottom, intermittently exposed, diked/impounded	3-94, 3-95	Pond HM-013	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-95	Stream HM-187	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-96, 3-97	Stream HM-190	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-100, 3-101	Stream HM-200	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-102	Stream HM-205	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-103	Stream HM-206	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-104	Stream HM-207	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-109	Stream HM-213	

TABLE 3-2: Mapped National Wetland Inventory Features

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

NWI Code	Description	Figure 3	Related Field Inventoried Resource	Comments
R2UBHx	Riverine lower perennial, unconsolidated bottom, permanently flooded, excavated	3-109, 3-110	Stream HM-216	
R4SBC	Riverine intermittent, streambed, seasonally flooded	3-109, 3-110	Stream HM-216	

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	Habitat Type	Delineated Area (acre)	ORAM		Nearest Structure # (Existing/ Proposed)	Existing Structure # in Wetland	Proposed Structure # in Wetland	Structure Installation Method	Proposed Impacts	
	Latitude	Longitude				Score	Category					Temporary Matting Area (acre)	Permanent Impact Area (acre)
Wetland HM-001	39.17224	-83.67508	Jurisdictional	PEM	0.05	33	2	344 / 2	None	None	TBD	TBD	0
Wetland HM-002	39.16555	-83.65917	Non-Jurisdictional	PEM	0.01	29	1	336 / 10	None	None	TBD	TBD	0
Wetland HM-003	39.16044	-83.64723	Jurisdictional	PSS	0.01	34.5	2	331 / 15	None	None	TBD	TBD	0
Wetland HM-004	39.15957	-83.64548	Jurisdictional	PEM	0.02	36.5	Modified 2	330 / 16	None	None	TBD	TBD	0
Wetland HM-005	39.15648	-83.63841	Jurisdictional	PEM	0.03	37	Modified 2	325 / 20	None	None	TBD	TBD	0
Wetland HM-006	39.15135	-83.62632	Jurisdictional	PEM	0.04	21	1	320 / 25	None	None	TBD	TBD	0
Wetland HM-007	39.15066	-83.62468	Jurisdictional	PEM	0.05	15	1	320 / 25	None	None	TBD	TBD	0
Wetland HM-008	39.15021	-83.62345	Jurisdictional	PEM	0.29	31	2	319 / 26	None	None	TBD	TBD	0
Wetland HM-009	39.14776	-83.61753	Jurisdictional	PEM	0.11	34	2	317 / 28	None	None	TBD	TBD	0
Wetland HM-010	39.14729	-83.61650	Jurisdictional	PEM	0.19	41	Modified 2	316 / 29	None	None	TBD	TBD	0
Wetland HM-011	39.14676	-83.61499	Jurisdictional	PEM	0.06	38	Modified 2	315 / 30	None	None	TBD	TBD	0
Wetland HM-012	39.12822	-83.57010	Jurisdictional	PEM	0.08	17	1	295 / 48	None	None	TBD	TBD	0
Wetland HM-013	39.12141	-83.55365	Non-Jurisdictional	PEM	0.10	13	1	281 / 55	None	None	TBD	TBD	0
Wetland HM-014	39.11523	-83.54212	Jurisdictional	PEM	0.17	15	1	282 / 61	None	None	TBD	TBD	0
Wetland HM-015	39.11525	-83.54141	Jurisdictional	PEM	0.03	16	1	274 / 62	None	None	TBD	TBD	0
Wetland HM-016	39.11152	-83.53282	Jurisdictional	PEM	0.03	18	1	277 / 66	None	None	TBD	TBD	0
Wetland HM-017	39.10963	-83.52909	Jurisdictional	PEM	0.04	14.5	1	269 / 68	None	None	TBD	TBD	0

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	Habitat Type	Delineated Area (acre)	ORAM		Nearest Structure # (Existing/ Proposed)	Existing Structure # in Wetland	Proposed Structure # in Wetland	Structure Installation Method	Proposed Impacts	
	Latitude	Longitude				Score	Category					Temporary Matting Area (acre)	Permanent Impact Area (acre)
Wetland HM-018	39.10600	-83.52147	Jurisdictional	PEM	0.07	22	1	266 / 71	None	None	TBD	TBD	0
Wetland HM-019	39.10202	-83.51306	Jurisdictional	PEM	0.01	21	1	267 / 76	None	None	TBD	TBD	0
Wetland HM-020	39.10059	-83.50993	Jurisdictional	PEM	<0.01	18	1	266 / 77	None	None	TBD	TBD	0
Wetland HM-021	39.09420	-83.49624	Jurisdictional	PSS	0.14	24.5	1	254 / 84	None	None	TBD	TBD	0
Wetland HM-022	39.08469	-83.46692	Jurisdictional	PEM	0.02	34.5	2	241 / 97	None	None	TBD	TBD	0
Wetland HM-023	39.08300	-83.46182	Jurisdictional	PEM	0.19	10.5	1	243A / 99	None	None	TBD	TBD	0
Wetland HM-024	39.07260	-83.43225	Jurisdictional	PEM	0.11	18.5	1	231 / 112	None	None	TBD	TBD	0
Wetland HM-025	39.06910	-83.42036	Jurisdictional	PEM	0.05	6	1	225 / 117	None	None	TBD	TBD	0
Wetland HM-026	39.06799	-83.41774	Jurisdictional	PEM	0.10	17	1	224 / 118	None	None	TBD	TBD	0
Wetland HM-027	39.06420	-83.40628	Jurisdictional	PEM	0.03	29.5	1	215 / 123	None	None	TBD	TBD	0
Wetland HM-028	39.06188	-83.39957	Jurisdictional	PEM	0.11	35	Modified 2	213 / 125	None	None	TBD	TBD	0
Wetland HM-029	39.06014	-83.39377	Jurisdictional	PEM	0.04	27	1	215 / 127	None	None	TBD	TBD	0
Wetland HM-030	39.04798	-83.36685	Non-Jurisdictional	PSS	0.03	15.5	1	203 / 136	None	None	TBD	TBD	0
Wetland HM-031	39.04675	-83.36477	Jurisdictional	PEM	0.08	23.5	1	205 / 137	None	None	TBD	TBD	0
Wetland HM-032	39.04520	-83.36115	Jurisdictional	PEM	0.69	29.5	1	203 / 139	None	None	TBD	TBD	0
Wetland HM-033	39.04352	-83.35743	Jurisdictional	PEM	0.22	18	1	199 / 140	None	None	TBD	TBD	0
Wetland HM-034	39.04135	-83.35277	Jurisdictional	PEM	0.15	40	Modified 2	200 / 142	None	None	TBD	TBD	0

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	Habitat Type	Delineated Area (acre)	ORAM		Nearest Structure # (Existing/ Proposed)	Existing Structure # in Wetland	Proposed Structure # in Wetland	Structure Installation Method	Proposed Impacts	
	Latitude	Longitude				Score	Category					Temporary Matting Area (acre)	Permanent Impact Area (acre)
Wetland HM-035	39.03788	-83.34537	Jurisdictional	PEM	<0.01	31	2	197 / 144	None	None	TBD	TBD	0
Wetland HM-036	39.03045	-83.32728	Non-Jurisdictional	PEM	0.01	25	1	190 / 151	None	None	TBD	TBD	0
Wetland HM-037	39.02620	-83.31634	Non-Jurisdictional	PSS	0.03	35.5	Modified 2	185 / 155	None	None	TBD	TBD	0
Wetland HM-038	39.02372	-83.30984	Non-Jurisdictional	PEM	0.01	26	1	181 / 158	None	None	TBD	TBD	0
Wetland HM-039*	39.02354	-83.30931	Non-Jurisdictional	PEM	0.05	32	2	181 / 159	None	None	TBD	TBD	0
Wetland HM-040*	39.02355	-83.30933		PSS	0.02			181 / 159	None	None	TBD	TBD	0
Wetland HM-041	39.01966	-83.29745	Jurisdictional	PEM	0.01	27	1	176 / 163	None	None	TBD	TBD	0
Wetland HM-042	39.01655	-83.28457	Jurisdictional	PEM	0.01	24	1	172 / 167	None	None	TBD	TBD	0
Wetland HM-043	39.01454	-83.27781	Jurisdictional	PEM	0.03	31	2	169 / 169	None	None	TBD	TBD	0
Wetland HM-044	39.01330	-83.27204	Jurisdictional	PEM	0.04	18.5	1	167 / 170	None	None	TBD	TBD	0
Wetland HM-045	39.01319	-83.27130	Jurisdictional	PEM	0.02	44	Modified 2	167 / 171	None	None	TBD	TBD	0
Wetland HM-046	39.00601	-83.23953	Non-Jurisdictional	PEM	0.20	33	2	157 / 181	None	None	TBD	TBD	0
Wetland HM-047	39.00056	-83.22334	Jurisdictional	PEM	0.02	25	1	151 / 188	None	None	TBD	TBD	0
Wetland HM-048	38.99766	-83.21803	Jurisdictional	PEM	0.19	34.5	2	149 / 190	None	None	TBD	TBD	0
Wetland HM-049	38.98852	-83.20120	Jurisdictional	PEM	0.14	20.5	1	141 / 196	None	None	TBD	TBD	0
Wetland HM-050	38.97864	-83.18322	Jurisdictional	PEM	0.09	27	1	135 / 203	None	None	TBD	TBD	0
Wetland HM-051	38.95896	-83.14585	Jurisdictional	PEM	0.02	13	1	118 / 219	None	None	TBD	TBD	0

TABLE 4-1: Delineated Wetland Table

Hillsboro to Millbrook Park 138 kV Transmission Line Rebuild Project

Wetland ID	Location		Preliminary Jurisdictional Status[1]	Habitat Type	Delineated Area (acre)	ORAM		Nearest Structure # (Existing/ Proposed)	Existing Structure # in Wetland	Proposed Structure # in Wetland	Structure Installation Method	Proposed Impacts	
	Latitude	Longitude				Score	Category					Temporary Matting Area (acre)	Permanent Impact Area (acre)
Wetland HM-052	38.92631	-83.09737	Jurisdictional	PEM	0.02	27	1	94 / 243	None	None	TBD	TBD	0
Wetland HM-053	38.92480	-83.09518	Jurisdictional	PEM	0.21	30	2	93 / 244	None	None	TBD	TBD	0
Wetland HM-054	38.92187	-83.09169	Jurisdictional	PEM	<0.01	21	1	91 / 246	None	None	TBD	TBD	0
Wetland HM-055	38.91677	-83.08398	Jurisdictional	PEM	0.01	20	1	88 / 249	None	None	TBD	TBD	0
Wetland HM-056	38.90211	-83.06508	Jurisdictional	PEM	0.02	16	1	79 / 258	None	None	TBD	TBD	0
Wetland HM-057	38.90017	-83.06333	Jurisdictional	PEM	<0.01	19	1	78 / 259	None	None	TBD	TBD	0
Wetland HM-058	38.89997	-83.06255	Non-Jurisdictional	PEM	<0.01	19	1	78 / 259	None	None	TBD	TBD	0
Wetland HM-059	38.88342	-83.04056	Non-Jurisdictional	PEM	0.02	24	1	71 / 265	None	None	TBD	TBD	0
Wetland HM-060	38.87603	-83.03188	Non-Jurisdictional	PEM	0.03	20	1	66 / 269	None	None	TBD	TBD	0
Wetland HM-061	38.86959	-83.01835	Jurisdictional	PEM	0.15	16	1	60 / 276	None	None	TBD	TBD	0
Wetland HM-062*	38.86478	-82.99228	Jurisdictional	PEM	0.41	29	1	54 / 285	None	None	TBD	TBD	0
Wetland HM-063*	38.86480	-82.99232		PSS	0.44			50 / 285	None	None	TBD	TBD	0
Wetland HM-064	38.85868	-82.98541	Jurisdictional	PEM	0.16	27	1	50 / 288	None	None	TBD	TBD	0
Wetland HM-065	38.85780	-82.98476	Jurisdictional	PEM	0.11	24	1	49 / 289	None	None	TBD	TBD	0
Wetland HM-066	38.85359	-82.98199	Jurisdictional	PEM	0.11	33	2	46 / 292	None	None	TBD	TBD	0
Wetland HM-067	38.83857	-82.97338	Non-Jurisdictional	PEM	0.03	32	2	38 / 297	None	None	TBD	TBD	0
Wetland HM-068	38.82262	-82.95930	Non-Jurisdictional	PEM	0.12	34	2	30 / 305	None	None	TBD	TBD	0