

Construction Notice for Shawtown Switch – Hancock Wood Co-Op 138kV Transmission Line Project



Case No. 20-365-EL-BNR

Submitted to:
The Ohio Power Siting Board
Pursuant to Ohio Administrative Code
Section 4906-6-05

Submitted by:
AEP Ohio Transmission Company, Inc.

February 21, 2020

**CONSTRUCTION NOTICE FOR THE SHAWTOWN SWITCH- HANCOCK WOOD CO-OP 138 kV
Transmission Line Project**

CONSTRUCTION NOTICE

AEP Ohio Transmission Company, Inc.'s Shawtown Switch – Hancock Wood Co-Op 138kV

4906-6-05

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco" or the "Company") provides the following information to the Ohio Power Siting Board ("OPSB") pursuant to Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

The name of the project and applicant's reference number, names and reference number(s) of resulting circuits, a brief description of the project, and why the project meets the requirements for a Construction Notice.

AEP Ohio Transco is proposing the Shawtown Switch-Hancock Wood Co-Op 138 kV Transmission Line Project ("Project"), located in Pleasant Township, Hancock County, Ohio. The Project involves tapping the existing 34.5kV Leipsic – McComb line with a new 138kV switch structure and connecting to a new customer station by installing 0.03 miles of 2-span 138kV line at the customer's request.

Figures 1 and 2 show the proposed alignment of the transmission line extension and new switch location.

The Project meets the requirements for a Construction Notice ("CN") because it is within the types of projects defined by Item (1)(a) of Appendix A to O.A.C. 4906-1-01 *Application Requirement Matrix for Electric Power Transmission Lines*:

1. *New construction, extension, or relocation of single or multiple circuit electric power transmission line(s), or upgrading existing transmission or distribution line(s) for operation at a higher transmission voltage, as follows:*
 - (a) *Line(s) not greater than 0.2 miles in length.*

The PUCO Case Number for this Project is 20-365-EL-BNR.

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B(2) Statement of Need

If the proposed Construction Notice project is an electric power transmission line or gas or natural gas transmission line, a statement explaining the need for the proposed facility.

This Project is customer-driven. The customer is currently served via a temporary single switch along the existing 34.5kV Leipsic – McCombl line. The customer has requested a replacement of the existing delivery point adjacent to their new station. The new 138kV switch is necessary to serve the load at the customer's station and to provide for future upgrades in the surrounding area.

The Project's need and solution were submitted to the PJM Subregional RTEP Committee during October 2019 and December 2019 meetings (see Appendix C). The PJM supplemental number is s2162

B(3) Project Location

The applicant shall provide the location of the project in relation to existing or proposed lines and substations shown on an area system map of sufficient scale and size to show existing and proposed transmission facilities in the Project area.

Figure 2 shows the location of the Project in relation to existing transmission lines and distribution stations.

B(4) Alternatives Considered

The applicant shall describe the alternatives considered and reasons why the proposed location or route is best suited for the proposed facility. The discussion shall include, but not be limited to, impacts associated with socioeconomic, ecological, construction, or engineering aspects of the project.

No viable cost-effective transmission alternatives were identified. Due to the Project being located entirely within parcels owned by the customer, as well as the Project's proximity to the customer station and the existing 34.5 kV line, the Project minimally impacts adjacent landowners, and there are no expected socioeconomic or ecological impacts associated with the Project.

B(5) Public Information Program

The applicant shall describe its public information program to inform affected property owners and tenants of the nature of the project and the proposed timeframe for project construction and restoration activities.

The Project will be located on an existing AEP Ohio Transco station parcel and an adjacent customer property. AEP Ohio Transco has worked closely with surrounding property owners during the development of the Project and maintains a website (<http://aeptransmission.com/ohio/>) on which an electronic copy of this CN is available. A paper copy of the CN will be served to the public library in each political subdivision affected by this Project.

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B(6) Construction Schedule

The applicant shall provide an anticipated construction schedule and proposed in-service date of the project.

Construction of the Project is planned to begin in the second quarter of 2020, and the anticipated in-service date is September 2020.

B(7) Area Map

The applicant shall provide a map of at least 1:24,000 scale clearly depicting the facility with clearly marked streets, roads, and highways, and an aerial image.

Figures 1 and 2 provide the proposed Project area on a map of 1:24,000-scale and 1:12,000-scale, respectively. Figure 1 shows the project area on the United States Geologic Service (USGS) 7.5-minute topographic maps of the McComb (1974) quadrangle. Figure 2 shows the Project area on recent aerial photography, as provided by World Imagery through ESRI (dated March 2018).

To visit the Project location from Columbus, take I-70 West to exit 93 to merge onto I-270 N and travel on I-270 N for approximately 9 miles. Then take exit 17B to merge onto OH-161 W/US-33 W and continue for approximately 47 miles. Exit onto OH-117 W toward OH-366/Huntsville/Lima and then merge onto OH-117 W and continue for approximately 9 miles. Turn right onto OH-235 N and then in approximately 500 feet turn left to stay on OH-235 N for approximately 9 miles. Turn left onto Township Road 104 and travel approximately 1 mile before turning right onto County Line Road/S Hardin Road. Travel for approximately 10 miles then continue onto County Line Road/S Hardin Road for approximately 7 miles before the road name changes to County Highway 16/Rd 1. In approximately 13 miles turn right onto Township Road 103 and the Project location is on the south side of the road in approximately 0.5 miles. The parcel mapped across the street from the Project location is listed under the address of 488 Township Road 103, McComb, OH 45858. The Project location is mapped at a latitude of 41.109098 and longitude of -83.871036 decimal degrees.

B(8) Property Agreements

The applicant shall provide a list of properties for which the applicant has obtained easements, options, and/or land use agreements necessary to construct and operate the facility and a list of the additional properties for which such agreements have not been obtained.

The Project will require an exclusive easement from the customer for Parcel No. 4000001001187 for the new switch pole structure. This easement is estimated to be acquired in the second quarter of 2020.

B(9) Technical Features

The applicant shall describe the following information regarding the technical features of the project:

B(9)(a) Operating characteristics, estimated number and types of structures required, and right-of-way and/or land requirements.

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Present information under the following parameters:

The transmission line construction will include the following:

Voltage: 138kV

Conductors: (3) 795 KCM ACSR 26/7 “Drake” SW

Static Wire: (1) 7#8 Alumoweld

Insulators: Polymer

ROW Width: 50 Feet

Structure Types: Single circuit, steel switch pole structure. One structure is needed

B(9)(b) Electric and Magnetic Fields

For electric power transmission lines that are within one hundred feet of an occupied residence or institution, the production of electric and magnetic fields during the operation of the proposed electric power transmission line.

B(9)(b)(i) Calculated Electric and Magnetic Field Strength Levels

i) Calculated Electric and Magnetic Field Levels

Three loading conditions were examined: (1) Normal Maximum Loading, (2) Emergency Loading, and (3) Winter Normal Conductor Rating consistent with the OPSB requirements. Normal Maximum Loading represents the peak flow expected with all system facilities in service; daily/hourly flows fluctuate below this level. Emergency loading is the maximum current flow during unusual (contingency) conditions, which exist only for short periods of time. Winter normal (WN) conductor rating represents the maximum current flow that a line, including its terminal equipment, can carry during winter conditions. It is not anticipated that either circuit of this line would operate at its WN rating in the foreseeable future.

EMF levels were computed one meter above ground under the line and at the ROW edges (50/50 feet, left/right, of centerline).

Our results, calculated using EPRI’s EMF Workstation 2015 software are summarized below.

Shawtown Switch - Hancock Wood Co-op 138 kV				
Condition	Circuit Load (A)	Ground Clearance (feet)	Electric Field (kV/m)*	Magnetic Field (mG)*
(1) Normal Max. Loading [^]	10.67	38.5	0.11/0.88/0.11	0.25/0.68/0.25
(2) Emergency Line Loading ^{^^}	10.7	37	0.12/1.28/0.12	0.33/0.97/0.33
(3) Winter Conductor Rating ^{^^^}	422.55	38.5	00.11/0.88/0.11	10.08/26.89/10.08

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*EMF levels (left ROW edge/maximum/right ROW edge) computed one meter above ground at the point of minimum ground clearance, assuming balanced phase currents and 1.0 P.U. Voltages. ROW width is 50 feet (left) and 50 feet (right) of centerline, respectively.

^Peak line flow expected with all system facilities in service.

^^Maximum flow during a critical system contingency, same as normal maximum loading since it only feeds the Distribution load.

^^^Maximum continuous flow that the line, including its terminal equipment, can withstand during winter conditions.

For power-frequency EMF, IEEE Standard C95.6TM-2002 recommends the following limits:

	General Public	Controlled Environment
	-----	-----
Electric Field Limit (kV/m)	5.0	20.0
Magnetic Field Limit (mG)	9040	27,100

The above EMF levels are well within the limits specified in IEEE Standard C95.6TM-2002. Those limits have been established to "prevent harmful effects in human beings exposed to electromagnetic fields in the frequency

B(9)(c) Project Cost

The estimated capital cost of the project.

The capital cost estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately \$1,800,000.

B(10) Social and Economic Impacts

The applicant shall describe the social and ecological impacts of the project:

B(10)(a) Operating Characteristics

Provide a brief, general description of land use within the vicinity of the proposed project, including a list of municipalities, townships, and counties affected.

The Project is within Pleasant Township in Hancock County, Ohio. The 0.03 mile long transmission line to the new switch structure is within AEP Ohio Transco ROW and will require one new exclusive easement. The land use in the vicinity of the Project is a mix of primarily residential and agricultural. No tree clearing is anticipated to be required for the Project. There are no parks, schools, churches, cemeteries, wildlife management areas, or nature preserve lands within 1,000 feet of the centerline of the Project.

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B(10)(b) Agricultural Land Information

Provide the acreage and a general description of all agricultural land, and separately all agricultural district land, existing at least sixty days prior to submission of the application within the potential disturbance area of the project.

The Project is not expected to impact Agricultural District Land. The Hancock County auditor has been contacted regarding agricultural district lands in Pleasant Township. The proposed switch is adjacent to an existing 34.5 kV transmission line. New infrastructure will be limited to the 0.03-mile long 138 kV line extension connecting the proposed switch to an existing customer station on the north side of Township Road 103. Impacts to agricultural land are expected to be minimal.

B(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant's investigation concerning the presence or absence of significant archaeological or cultural resources that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

A Phase I Cultural Resource Management Investigation was completed on October 9th, 2019 by AEP Ohio Transco's consultant. A copy of this report can be found under Appendix B.

B(10)(d) Local, State, and Federal Agency Correspondence

Provide a list of the local, state, and federal governmental agencies known to have requirements that must be met in connection with the construction of the project, and a list of documents that have been or are being filed with those agencies in connection with siting and constructing the project.

Once final design of the project is complete, including identification of access roads, a Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000004, if disturbance exceeds one acre. An overhead road crossing permit will be required for the crossing of Township Road 103. There are no other known local, state, or federal requirements that must be met prior to commencement of the proposed Project.

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B(10)(e) Threatened, Endangered, and Rare Species

Provide a description of the applicant's investigation concerning the presence or absence of federal and state designated species (including endangered species, threatened species, rare species, species proposed for listing, species under review for listing, and species of special interest) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

AEP Ohio Transco's consultant prepared a Threatened and Endangered Species Report. The consultant coordinated with the USFWS and ODNR regarding special status species in the vicinity of the Project. No impacts to threatened or endangered species are expected. A copy of the coordination for the Project is included in the Wetland Delineation and Stream Assessment Report included as Appendix A.

B(10)(f) Areas of Ecological Concern

Provide a description of the applicant's investigation concerning the presence or absence of areas of ecological concern (including national and state forests and parks, floodplains, wetlands, designated or proposed wilderness areas, national and state wild and scenic rivers, wildlife areas, wildlife refuges, wildlife management areas, and wildlife sanctuaries) that may be located within the potential disturbance area of the project, a statement of the findings of the investigation, and a copy of any document produced as a result of the investigation.

AEP Ohio Transco's consultant prepared a Wetland Delineation and Stream Assessment Report. No impacts to wetlands or streams are anticipated. A copy of the Wetland Delineation and Stream Assessment Report for the Project is included as Appendix A.

B(10)(g) Unusual Conditions

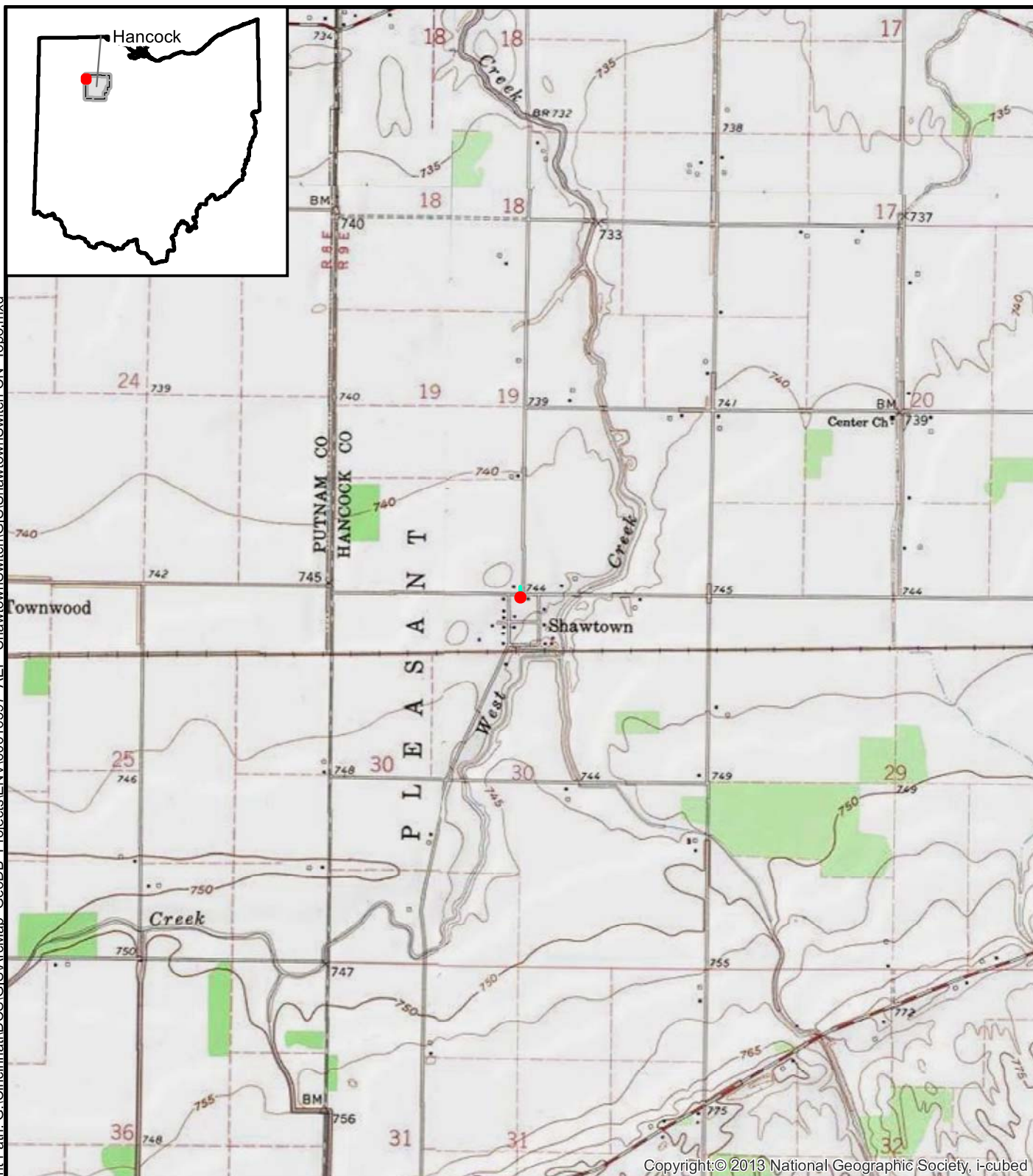
Provide any known additional information that will describe any unusual conditions resulting in significant environmental, social, health, or safety impacts.

To the best of AEP Ohio Transco's knowledge, no unusual conditions exist that would result in significant environmental, social, health, or safety impacts.

APPENDIX A

Figure 1

Figure 2



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LEGEND:

- Shawtown Switch
- 138 kV Line

0 2,000 4,000
Scale In Feet



Shawtown Switch
Project

FIGURE 1
PROJECT OVERVIEW

DATE: 1/8/2020

SCALE: 1:24,000

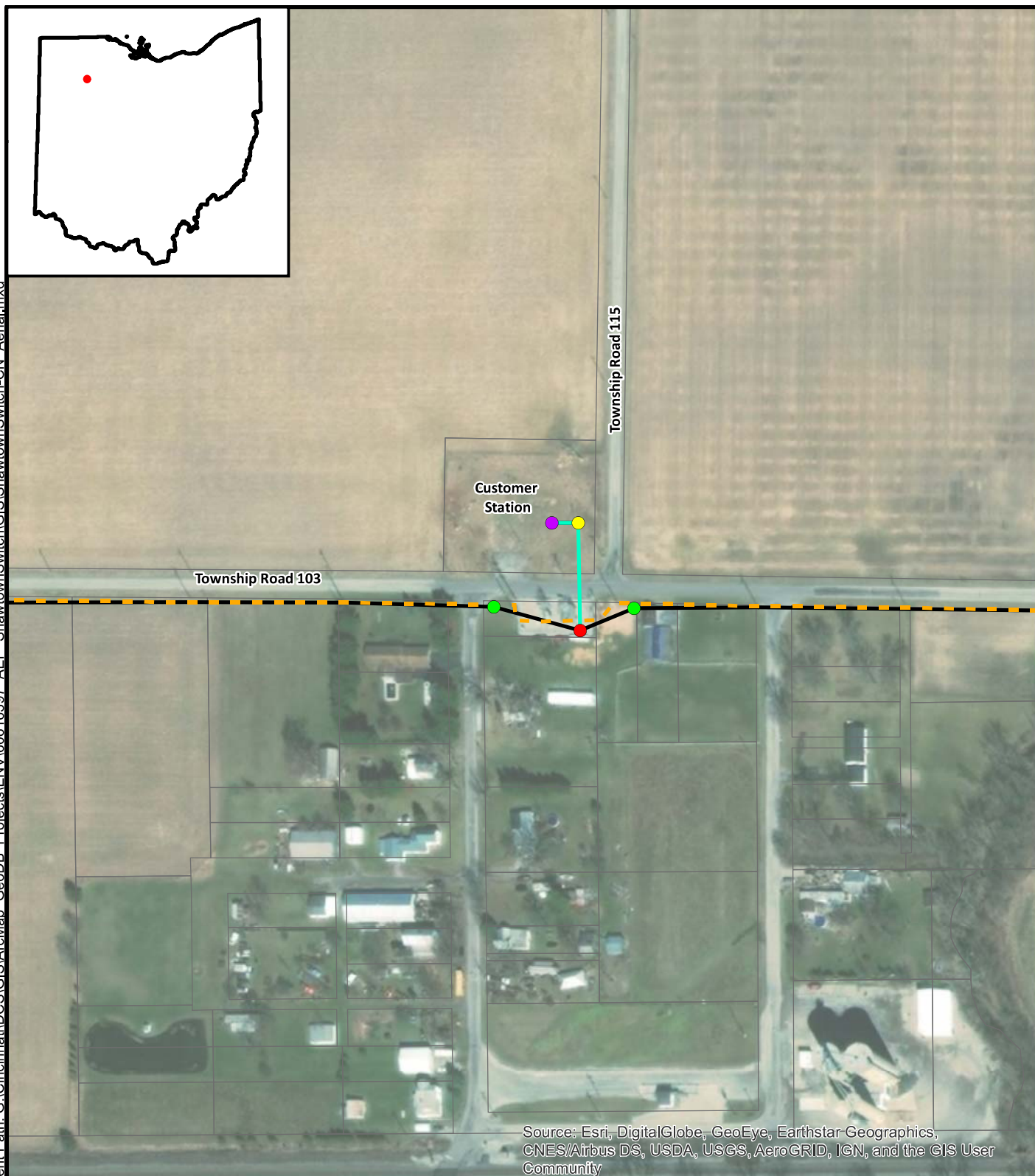
CREATED BY: BAW

CHECKED BY: AG

JOB NO. 60616397

AECOM

Date Saved: 1/31/2020 Document Path: G:\Cincinnati\DCS\GIS\ArcMap_GeoDB_Projects\ENV\60616397_AEP_ShawtownSwitch-CN_Aerial.mxd



LEGEND:

Proposed Structure Locations

- Shawtown Switch 138 kV Switch Pole
- Structure - 138kV Steel Pole
- Structure - 34.5 kV Steel Pole
- Termination Point into Station
- Proposed 34.5 kV Line
- Proposed 138 kV Line
- - Existing Line
- Parcel Boundary



0 200 400
Scale In Feet



Shawtown Switch
Project

FIGURE 2
AERIAL PHOTOGRAPHY OF
THE PROJECT VICINITY

DATE: 1/31/2020

SCALE: 1:2,400

CREATED BY: BAW

CHECKED BY: AG

JOB NO. 60616397



Appendix B Wetland Delineation and Stream Assessment Report

SHAWTOWN SWITCH PROJECT, HANCOCK COUNTY, OHIO

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

Prepared for:

American Electric Power Ohio Transmission Company
700 Morrison Road
Gahanna, Ohio 45230



Prepared by:



525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Project #: 60616397

October 2019

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LIST OF ACRONYMS and ABBREVIATIONS

AECOM	AECOM Technical Services, Inc.
AEP Ohio Transco	American Electric Power Ohio Transmission Company
DBH	Diameter at Breast Height
DOW	Division of Wildlife
DWR	Division of Water Resources
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
GIS	Geographic Information System
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
IBI	Index of Biotic Integrity
IPaC	Information for Planning and Consultation
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate wetland
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary high water mark
ONHD	Ohio Natural Heritage Database
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
PSS	Palustrine scrub/shrub
PUB	Palustrine unconsolidated bottom
PHWH	Primary Headwater Habitat
QHEI	Qualitative Habitat Evaluation Index
ROW	Right-of-way
UPL	Upland
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WOTUS	Waters of the United States

1.0 INTRODUCTION

American Electric Power Ohio Transmission Company (AEP Ohio Transco) is proposing to install a new 138 kV switch and approximately 0.1 mile of new 138 kV transmission tie line (Project) in Hancock County, Ohio. A customer has upgraded and relocated their station (Shawtown Station) from the south side of Township Road 103 to the north side of Township Road 103. The proposed switch will be installed at the old station location with the tie line extending north to the recently constructed station. Ohio Transco requested that AECOM Technical Services, Inc. (AECOM) conduct a wetland delineation and stream assessment within the approximately 1.3-acre area (Project survey area). The proposed Project location is illustrated on Figure 1.

The purpose of the field survey was to assess whether wetlands and other “waters of the United States (U.S.)”(WOTUS) exist within the Project survey area. Secondly, land uses were recorded to classify and characterize potential habitat for rare, threatened, and endangered species. This report will be used to assist AEP Ohio Transco’s efforts to identify potential WOTUS and rare, threatened and endangered species habitat potentially present within the Project survey area to avoid or minimize impacts to during construction activities.

2.0 METHODOLOGY

Prior to conducting field surveys, digital and published county U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological Survey (USGS) 7.5-minute topographic maps were reviewed to identify the occurrence and location of potential wetland areas.

In October 2019, AECOM ecologists walked the Project survey area to conduct a wetland delineation and stream assessment. During the field survey, the physical boundaries of observed water features were recorded using sub-meter capable EOS Arrow Global Navigation Satellite System (GNSS) receiver in conjunction with ArcCollector application on iPad tablets. The GNSS data was imported into ArcMap Geographic Information System (GIS) software, where the data was then reviewed and edited for accuracy. Land uses observed within the Project survey area were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys.

2.1 WETLAND DELINEATION

The Project survey area was evaluated according to the procedures outlined in the U.S. Army Corps of Engineers (USACE) *1987 Wetland Delineation Manual (1987 Manual)* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (Regional Supplement)* (USACE, 2012). The *Regional Supplement* was

released by the USACE in January 2012 to address regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures. The *1987 Manual* and *Regional Supplement* define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters transition to upland characteristics.

Since quantitative data were not available for any of the identified wetlands, AECOM utilized the routine delineation method described in the *1987 Manual* and *Regional Supplement* that consisted of a pedestrian site reconnaissance, including soils identification, geomorphologic assessment of hydrology, identification of vegetative communities, and notation of disturbance. The methodology used to examine each parameter is described in the following sections.

2.1.1 SOILS

Soils were examined for hydric soil characteristics using a spade shovel to extract soil samples. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 2010) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (Environmental Laboratory, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

2.1.2 HYDROLOGY

The *1987 Manual* requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season (areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands). The *Regional Supplement* states that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-in. depth) is 41 degree Fahrenheit (°F) or higher as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The *Regional Supplement* also states that if onsite data gathering is not practical, the growing season can be approximated by the number of days between the average (five years out of 10, or 50 percent probability) date of the last and first 28° F air temperature in the spring and fall, respectively. The National Weather Service WETS data obtained from the NRCS National Water and Climate Center reveals for Hancock County that in an average year, this period lasts from April 11 to October 31, or 203 days. In the Project area, five percent of the growing season equates to approximately 10 days.

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional Supplement*. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2012).

2.1.3 VEGETATION

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), FAC, facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the U.S. Army Corps of Engineers *2016 National Wetland Plant List: Northcentral and Northeast Region* (Lichvar et al, 2016), which encompasses the Project survey area. An area is determined to have hydrophytic vegetation when, under normal circumstances, more than 50 percent of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when 50 percent or more of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation. Recent USACE guidance indicates that to the extent possible, the hydrophytic vegetation decision should be based on the plant community that is normally present during the wet portion of the growing season in a normal rainfall year (USACE, 2012).

2.1.4 WETLAND CLASSIFICATIONS

Wetlands were classified based on the naming convention found in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al, 1979). There are five main classes of wetlands and deepwater habitats. They include: marine, estuarine, riverine, lacustrine, and palustrine. Marine and estuarine wetlands are not found in this area of the U.S. Freshwater, Palustrine systems, which includes non-tidal wetlands dominated by trees, shrubs, or emergent vegetation, are potential wetland types which may be identified within the Project area. The possible palustrine wetland classification types are as follows:

PEM – Palustrine emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.

PSS – Palustrine scrub/shrub wetlands are characterized by woody vegetation that is less than three inches diameter at breast height (DBH), and greater than 3.28 feet tall. The woody angiosperms (i.e. small trees or shrubs) in this broad leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.

PFO – Palustrine forested wetlands are characterized by woody vegetation that is three inches or more DBH, regardless of total height. These wetlands generally include an overstory of broad-leaved and needle-leaved trees, an understory of young saplings and shrubs, and an herbaceous layer.

PUB – Palustrine unconsolidated bottom wetlands includes all open water wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones, and a vegetative cover less than 30 percent. Palustrine open water wetlands are characterized by the lack of large stable surfaces for plant and animal attachment.

For some wetlands, multiple Cowardin classifications may be present where more than one classification's vegetation is dominant (vegetation covers 30 percent or more of the substrate). Where multiple Cowardin classifications are present, the Cowardin classification of the plants that constitute the uppermost layer of vegetation is listed.

2.1.5 OHIO RAPID ASSESSMENT METHOD v. 5.0

The Ohio Environmental Protection Agency (OEPA) *Ohio Rapid Assessment Method for Wetlands v. 5.0* (ORAM) was developed to determine the relative ecological quality and level of disturbance of a particular wetland in order to meet requirements under the Clean Water Act Section 401 Certification. Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under the ORAM resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3." Transitional zones exist between "Categories 1 and 2" from 30 to 34.9 and between "Categories 2 and 3" from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower Category (Mack, 2001).

Category 1 Wetlands

Category 1 wetlands support minimal wildlife habitat, hydrological and recreational functions, and do not provide for or contain critical habitats for threatened or endangered species. In addition, Category 1 wetlands are often hydrologically isolated and have some or all of the following characteristics: low species diversity, no significant habitat for wildlife use, limited potential to achieve wetland functions, and/or a predominance of non-native species. These limited quality wetlands are considered to be a resource that has been severely degraded or has a limited potential for restoration or is of low ecological functionality.

Category 2 Wetlands

Category 2 wetlands "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Category 2 wetlands constitute the broad middle category of "good" quality wetlands, and can be considered a functioning, diverse, healthy water resource that has ecological integrity and human value. Some Category 2 wetlands are lacking in human disturbance and considered to be naturally of moderate quality; others may have been Category 3 wetlands in the past, but have been degraded to Category 2 status.

Category 3 Wetlands

Wetlands that are assigned to Category 3 have "...superior habitat, or superior hydrological or recreational functions." They are typified by high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide. A wetland may be a Category 3 wetland because it exhibits one or all of the above characteristics. For example, a forested wetland located in the flood plain of a river may exhibit "superior" hydrologic functions (e.g., flood retention, nutrient removal), but not contain mature trees or high levels of plant species diversity.

2.2 STREAM CROSSINGS

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and "designated uses" to all WOTUS upstream to the highest reaches of the tributary streams. In addition, the Clean Water Act requires knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high water mark (OHWM). The USACE defines OHWM as "that 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). Currently, WOTUS in Ohio are regulated under the 2015 Clean Water Rule.

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* (Rankin, 2006) and in the OEPA's *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams* (OEPA, 2012).

2.2.1 OEPA QUALITATIVE HABITAT EVALUATION INDEX

The Qualitative Habitat Evaluation Index (QHEI) is designed to provide a rapid determination of habitat features that correspond to those physical factors that most affect fish communities and which are generally important to other aquatic life (e.g., macroinvertebrates). The quantitative measure of habitat used to calibrate the QHEI score are Indices (or Index) of Biotic Integrity (IBI) for fish. In most instances the QHEI is sufficient to give an indication of habitat quality, and the intensive quantitative analysis used to measure the IBI is not necessary. It is the IBI, rather than the QHEI, that is directly correlated with the aquatic life use designation for a particular surface water.

The QHEI method is generally considered appropriate for waterbodies with drainage basins greater than one mile², if natural pools are greater than 40 cm, or if the water feature is shown as blue-line waterways on USGS 7.5-minute topographic quadrangle maps. In order to convey general stream habitat quality to the regulated public, the OEPA has assigned narrative ratings to QHEI scores. The ranges vary slightly for headwater streams (H are those with a watershed area less than or equal to 20 mile²) versus larger streams (L are those with a watershed area greater than 20 mile²). The Narrative Rating System includes: Very Poor (<30 H and L), Poor (30 to 42 H, 30 to 44 L), Fair (43 to 54 H, 45 to 59 L), Good (55 to 69 H, 60 to 74 L) and Excellent (70+ H, 75+ L).

2.2.2 OEPA PRIMARY HEADWATER HABITAT EVALUATION INDEX

Headwater streams are typically considered to be first-order and second-order streams, meaning streams that have no upstream tributaries (or "branches") and those that have only first-order tributaries, respectively. The stream order concept can be problematic when used to define headwater streams because stream-order designations vary depending upon the accuracy and resolution of the stream delineation. Headwater streams are generally not shown on USGS 7.5-minute topographic quadrangles and are sometimes difficult to distinguish on aerial photographs. Nevertheless, headwater streams are now recognized as useful monitoring units due to their abundance, widespread spatial scale and landscape position (Fritz et al, 2006). Impacts to headwater streams can have a cascading effect on the downstream water quality and habitat value. The headwater habitat evaluation index (HHEI) is a rapid field assessment method for physical habitat that can be used to appraise the biological potential of most Primary Headwater Habitat (PHWH) streams. The HHEI was developed using many of the same techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use HHEI, the stream must have a "defined bed and bank, with either continuous or periodically flowing water, with watershed area less than or equal to 1.0 mile², and a maximum depth of water pools equal to or less than 15.75 inches" (OEPA, 2012).

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into "Class 1 PHWH Streams", 30 to 69.9 are

"Class 2 PHWH Streams", and 70 to 100 are "Class 3 PHWH Streams". Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the OEPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (OEPA, 2012). Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream.

Class 1 PHWH Streams: Class 1 PHWH Streams are those that have "normally dry channels with little or no aquatic life present" (OEPA, 2012). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelts or rainwater runoff.

Class 2 PHWH Streams: Class 2 PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (OEPA, 2012). These species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

Class 3 PHWH Streams: Class 3 PHWH Streams usually have perennial water flow with cool-cold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

2.3 RARE, THREATENED AND ENDANGERED SPECIES

AECOM conducted a rare, threatened, and endangered species review and general field habitat surveys within the Project survey area. The first phase of the review involved a review of online lists of federally and state-listed species. In addition to the review of available lists, AECOM submitted a request to Ohio Department of Natural Resources (ODNR) Office of Real Estate – Environmental Review Section soliciting comments on the Project. AECOM also submitted a coordination letter to the USFWS soliciting technical assistance on the Project. To date, AECOM has not received a response from the agencies; however, available species-specific information was reviewed to identify the various habitat types that listed species are known to inhabit.

AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys as part of the second phase of assessing rare, threatened, and endangered species. Land uses observed by the Project survey area were assigned a general classification based upon the principal land characteristics of the location as observed through aerial photography review and observations during the field surveys.

3.0 RESULTS

AECOM did not identify any wetlands, streams, or ponds within the Project survey area. One upland data point was recorded at the Project survey area boundary. The results of the field survey are discussed in detail in the following sections.

3.1 WETLAND DELINEATION

3.1.1 Preliminary Soils Evaluation

Soils in the Project area were observed and documented as part of the delineation methodology. According to the USDA NRCS Web Soil Survey of Hancock County, Ohio (USDA NRCS, 2017), and the USDA NRCS Hydric Soils Lists of Ohio, one soil series is mapped within the Project survey area (USDA NRCS 2017). The soil map unit within this soil series is listed as not hydric. Table 1 provides a detailed overview of the soil series and soil map unit within the Project survey area. The soil map unit located within the Project survey area is shown on Figure 2.

TABLE 1
SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE SHAWTOWN SWITCH PROJECT SURVEY AREA

Soil Series	Symbol	Map Unit Description	Topographic Setting	Hydric	Hydric Component (%)
Nappanee	NpA	Nappanee silty clay loam, 0 to 2 percent slopes	Flats on lake plains, rises on lake plains	No	Hoytville (10%)

(1) Data sources include: USDA, NRCS. Web Soil Survey. Available online at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

(2) USDA, NRCS. October 2019. National Hydric Soils List by State. Available online at: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>

3.1.2 National Wetland Inventory Map Review

National Wetland Inventory wetlands are areas of potential wetland that have been identified from USFWS aerial photograph interpretation which have typically not been field verified. Forested and heavy scrub/shrub wetlands are often not shown on NWI maps as foliage effectively hides the visual signature that indicates the presence of standing water and moist soils from an aerial view. In addition, small wetlands are typically not identified due to the scale of the aerial photography. The USFWS website (U.S. Fish and Wildlife Service, 2019) states that the NWI maps are not intended or designed for jurisdictional wetland identification or location. As a result, NWI maps do not show all the wetlands found in a particular area nor do they necessarily provide accurate wetland boundaries. NWI maps are useful for providing indications of potential wetland areas, which are often supported by soil mapping and hydrologic predictions, based upon topographical analysis using USGS topographic maps.

According to the NWI map of the McComb, Ohio quadrangle, the Project survey area does not contain any mapped NWI wetlands (Figure 2).

3.1.3 Delineated Wetlands

AECOM did not identify any wetlands within the Project survey area, however, one upland data point was recorded. The location of this upland point is shown on Figure 3 and Figure 4. The completed USACE form is provided in Appendix A.

3.2 STREAM CROSSINGS

AECOM did not identify any streams within the Project survey area.

3.3 PONDS

AECOM did not identify any ponds within the Project survey area.

3.4 VEGETATIVE COMMUNITIES WITHIN THE PROJECT SURVEY AREA

AECOM field ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys in October 2019. The Project survey area contained agricultural land, old field, landscaped, and urban vegetative communities. Habitat descriptions applicable to the Project and details on the expected impacts of construction are provided below. Vegetated land cover can be seen from aerial imagery provided on Figure 4.

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Summary: Notice Construction Notice for the Shawtown Switch-Hancock Wood Co-Op 138 kV Transmission Line Project- PART 1 electronically filed by Tanner Wolfram on behalf of AEP Ohio Transmission Company, Inc.