Construction Notice for the Willow Island – Mill Creek 138kV Transmission Line Extension Project

PUCO Case No. 17-1098-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.

May 8, 2017

CONSTRUCTION NOTICE FOR THE WILLOW ISLAND – MILL CREEK 138KV TRANSMISSION LINE EXTENSION PROJECT

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Construction Notice

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4906-6-05

AEP Ohio Transmission Company, Inc. ("AEP Ohio Transco") is providing the following information to the Ohio Power Siting Board ("OPSB") in accordance with the accelerated request of Ohio Administrative Code Section 4906-6-05.

4906-6-5(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 Willow Island-Mill Creek 138kV Transmission Line Extension Project ("Project"), located in Section 3 of Township 2 North, Range 8 West, Marietta Township, Washington County, Ohio. The Project consists of constructing two parallel electric transmission line extensions and work will occur within AEP Ohio Transco's transmission line right-of-way ("ROW"). The northwestern extension is approximately 0.08 miles and the southeastern extension is approximately 0.09 miles. The Project will extend the existing 138 kV transmission line to energize a new distribution station. 1.1 in Appendix A shows the location of the Project. Figures 1.2 and 1.3 in Appendix A show the existing AEP Ohio Transco 138 kV transmission line location, the distribution station, and the 3.7-acre Project Area.

The Project meets the requirements for a Construction Notice ("CN") because it is within the types of projects defined by 1(a) of Ohio Administrative Code Section 4906-1-01 Appendix A of the 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 Project has been assigned PUCO Case No. 17-1098-EL-BNR.

B(2) Statement of Need

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

The purpose of this Project is to energize a newly constructed AEP Ohio distribution station from the existing 138kV transmission line running northeast of the Project area, and is part of a

series of improvements to enhance the reliability of electric service in Washington County and the greater Marietta area. The proposed Project is to extend the 138kV transmission line to the new station, which will provide a more reliable source of power to local distribution customers. Currently, the local customers are served from two remote AEP substations, which are reaching capacity. This new distribution station will permit future load growth in the area and reduce the amount of distribution-line outage risk. The future distribution substation ("Levee") project was listed in the 2016 AEP Ohio Long Term Forecast Report, Form FE-T10 (Proposed Substations), on page 78, Case No. 16-501-EL-FOR. The 138kV transmission line extension was not listed separately due to the anticipated short distance of the extension.

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.

Figures 1.1, 1.2, and 1.4 in Appendix A show the location of the proposed Project in relation to the existing AEP Ohio Transco 138 kV electric transmission line that will be utilized for the Project.

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.

All of the proposed transmission line work will occur within existing AEP Ohio Transco ROW. Due to the proximity of the existing 138 kV transmission line and ROW to the location of the new distribution station, the location of the Project is the most economically viable solution as it will utilize existing ROW. No other primary alternatives were considered. The proposed Project will not incur any significant socioeconomic, ecological, or construction impacts due to the minimal length of the Project, and as the proposed Project will be within AEP Ohio Transco's current easement. The location of the new distribution station and associated transmission line extension was prioritized to have a minimal impact on local stakeholders.

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 fully on AEP Ohio Transco property and transmission line ROW. AEP Ohio Transco has not developed a public information program for this Project but has worked closely with surrounding property owners during the development of the Project. AEP Ohio Transco 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 sent to the public library in each political subdivision affected by this Project.

B(6) Construction Schedule

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

AEP Ohio Transco anticipates that construction of the Project will begin in September 2017, and the in-service date (completion date) of the Project will be approximately December 2017.

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.

Figure 1.1 in Appendix A identifies the location of the Project on the USGS quadrangle map with coverage of the Project area. Figure 1.2 in Appendix A is an aerial map of the Project. To visit the Project from Columbus, take I-70 East toward Wheeling. Take exit 180A to merge onto I-77 South toward Marietta. Take Exit 1 for OH-7 and turn left on OH-7 North/Ohio River Scenic Byway/Pike Street. Turn left onto County Road 9, turn right onto Sandhill Cornerville Road, and turn right onto Cornerville Road. The Project is located along this road just south of its intersection with Swartz Road in Marietta Township.

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.

In the Project area, AEP Ohio Transco currently owns the proposed distribution substation property (Ohio Power Company; Parcel ID 230083168000) as well as an existing Willow Island-Mill Creek 138 kV transmission line right-of-way easement. No other property easements, options, or land use agreements are necessary to construct the Project or operate the transmission line.

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.

The Project involves the installation of four (4) 138 kV single circuit, electric transmission lines. The four (4) 138 kV single circuit, heavy angle dead-end steel structures will stand at approximately 85 to 90 feet in height. The Project will utilize 954,000 kcmil 45/7 ACSR (Rail) conductors, along with 7#9 alumoweld shield wire. All dead-ends will utilize pier foundations with anchor cages. The design and operating voltage will be 138 kV. Structure diagram is presented in Appendix D. All of the proposed transmission line work will occur within existing AEP Ohio Transco ROW. No other property easements, options, or land use agreements are necessary to construct the Project or operate the transmission line.

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. The discussion shall include:

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

This section is not applicable. There are no occupied residences or institutions located within 100 feet of the Project.

B(9)(b)(ii) Design Alternatives

A discussion of the applicant's consideration of design alternatives with respect to electric and magnetic fields and their strength levels, including alternate conductor configuration and phasing, tower height, corridor location, and right-of-way width.

There are no occupied residences or institutions located within 100 feet of the Project. The transmission line work associated with the Project will occur on existing AEP Ohio Transco property. Therefore, no design alternatives were considered.

B(9)(b)(ii)(c) Project Cost

The estimated capital cost of the project.

The capital costs estimate for the proposed Project, comprised of applicable tangible and capital costs, is approximately $900,000.

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 located within Mariette Township, Washington County, Ohio. Figure 1.3 in Appendix A shows USDA land use categories for the Project area. Terrestrial habitat mapping in Appendix C (Figure 3) shows that the Project area consists mostly of pasture habitat (3.3 acres), with riparian forest present to a lesser degree (0.4 acres) and only along the northeast boundary of the Project area. No tree clearing is anticipated to be required for the Project. No wetlands are present in the Project area.

There are currently ten (10) residences within 1,000 feet of the centerline of 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.

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 proposed Project is not located within agricultural district lands based on coordination with the Washington County Auditor's Office. Additionally, no agricultural row crop land is present within the Project area (See Figure 1.3 in Appendix A and Figure 3 in Appendix C).

B(10)(c) Archaeological and Cultural Resources

Provide a description of the applicant's investigation concerning the presence or absence of significant archeological 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.

In December of 2015, AEP Ohio Transco's consultant completed a Phase I archaeological investigation for the Project (Appendix B). Field investigations were conducted in the footprint of the planned construction activity. No buildings or structures older than 50 years are directly impacted.

The Project area is located to the northeast of the Community of Reno, just south and east of Marietta. It is an irregularly shaped parcel that is in the Northwest Quarter of Section 3 (Marietta Township). The northeastern boundary of the Project area is along an existing electric line transmission line corridor. The Project area includes steep upland terrain and comparably flatter landforms in the northern part. The Project area is drained by the Little Muskingum River and Mill Run, one of its tributaries. There are several oil/gas wells located in the vicinity of the Project area, including one storage/separator tank and one oil/gas well that are within the Project area. The Project area includes pastures that are within a rural landscape.

The literature review conducted for this Project did not indicate previously recorded resources within the Project area. There were no previous surveys or archaeological sites identified in the study area. There were 25 Ohio Historic Inventory sites and one cemetery identified in the study area. However, none of these resources were found to be adjacent to or abutting the Project area.

The field investigations involved subsurface testing and visual inspection. These investigations did not result in the identification of cultural materials, and much of the Project area was found to be steeply sloped or disturbed, especially in the southern portion of the Project area. The planned work will not involve any buildings that are older than 50 years. There are no significant or historic properties identified within the area of potential effect for this Project. No further work is deemed necessary for the Project.

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.

A Notice of Intent ("NOI") will be filed with the Ohio Environmental Protection Agency for authorization of construction storm water discharges under General Permit OHC000004, and AEP Ohio Transco will implement and maintain best management practices as outlined in the project-specific Storm Water Pollution Prevention Plan to minimize erosion and control sediment to protect surface water quality during storm events. None of the three proposed steel pole structures will be installed in any streams or wetlands, and no tree clearing will be required in forested wetlands (see Appendix C). Consequently, the Project will not require a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers or Pre-Construction Notification to the U.S. Army Corps of Engineers.

No structures or proposed access roads are located within a 100-year floodplain area. Therefore, no floodplain permitting is expected to be required for the Project. There are no other known local, state or federal requirements that must be met prior to commencement of the Project.

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.

The United States Fish and Wildlife Service ("USFWS") *Federally Listed Species by Ohio Counties October 2015* (available at www.fws.gov/midwest/ohio/pdf/OhioTEListByCountyOct2015.pdf) was reviewed to determine the threatened and endangered species currently known to occur in Washington County. This USFWS publication lists Indiana bat (*Myotis sodalis*; federally listed endangered), northern long-eared bat (*Myotis septentrionalis;* federally listed threatened), fanshell (*Cyprogenia stegaria*; federally-listed endangered), pink mucket pearly mussel (*Lampsilis abrupta*; federally-listed endangered), sheepnose (*Plethobasus cyphyus*; federally-listed endangered), and snuffbox (*Epioblasma triquetra*; federally-listed endangered), as the threatened or endangered species currently known to occur in Washington County. The eastern hellbender (*Cryptobranchus alleganiensis*; federally species of

concern), timber rattlesnake (*Crotalus horridus*; federal species of concern), and bald eagle (*Haliaeetus leucocephalus*; de-listed but still protected under the Bald and Golden Eagle Protection Act), were also on this list of species for Washington County. Several state-listed threatened and endangered species, species of concern, and special interest species are listed by the Ohio Department of Natural Resources (http://wildlife.ohiodnr.gov/species-and-habitats/state-listed-species/state-listed-species-by-county) as occurring or potentially occurring in Washington County. The Indiana bat, northern long-eared bat, and other state-listed species occurring in Washington County are addressed in detail in the Ecological Resources Inventory Report included in Appendix C.

As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS Ohio Ecological Services Field Office seeking an environmental review of the Project for potential impacts to threatened or endangered species. The March 3, 2016 response letter from USFWS (see Appendix C) indicated that the Project is has the potential to be within the range of the Indiana bat and northern long-eared bat. Due to this potential, the USFWS/ODNR recommends seasonal tree cutting for trees ≥3 inches diameter at breast height between October 1 and March 31 to avoid adverse impacts to this species. As stated above, the proposed Project area contains two habitat types: pasture and riparian forest. However, no tree clearing activities are anticipated to be required for the Project. Therefore, the Project is not likely to adversely affect those species.

As part of the ecological study completed for the Project, coordination letters were submitted to the ODNR Division of Wildlife ("DOW"), Ohio Natural Heritage Program ("ONHP") and ODNR-Office of Real Estate. Correspondence received from ODNR DOW/ONHP (see Appendix C) indicates that a one-mile radius around the Project area contains known occurrences of the eastern sand darter (*Ammocrypta pellucida*; state-listed species of concern) and the eastern spadefoot (*Scaphiopus holbrookii*; state-listed endangered). However, no habitats for these species are located within the Project area. The response letter received from the ODNR-Office of Real Estate indicates that the Project is within the range of several state-listed species. However, they stated that due to the location, the type of habitat present at the project site, and the type of work proposed (including lack of work in perennial streams), the Project is not likely to impact any of those species.

USFWS and ODNR correspondence relating to threatened and endangered species and an endangered and rare species review is included in the Ecological Resources Inventory Report provided in Appendix C.

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.

Correspondence received from USFWS (see Appendix C) indicates that there are no federal wilderness areas, wildlife refuges, or designated critical habitat near the Project area. Correspondence from ODNR DOW/ONHP (see Appendix C) indicates that they are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves or parks, national wildlife refuges, or other parks or forests within a one-mile radius of the Project area. Marietta State Nursery was identified by the ODNR DOW/ONHP as being within a one-mile radius of the Project area, but will not be affected by the Project.

There are no National Wetlands Inventory (NWI) features mapped in the Project area (see Appendix C). A wetland and stream delineation survey was completed by AEP Ohio Transco's consultant within the Project area on January 28, 2016. During the field survey, no wetlands were identified in the Project area and no wetlands are proposed to be impacted by construction of temporary access roads or the installation of the proposed transmission line poles. Therefore, no permanent or temporary impacts to wetlands are anticipated. There were no streams identified by AEP Ohio Transco's consultant within the limits of the Project area. One upland drainage feature was identified within the Project area. Photographs of the Project area are provided in Appendix C of the Ecological Resources Inventory Report.

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's knowledge, there are no known unusual conditions that would result in significant environmental, social, health, or safety impacts.

Appendix A Project Maps

Figures 1.1, 1.2, 1.3, and 1.4

Figure No.
1.1

Title
Project Location Map

Client/Project
AEP Ohio Transmission Company, Inc.
Willow Island - Mill Creek 138 kV
Transmission Line Extension Project

Project Location
T2N, R8W, S3
Washington Co., OH

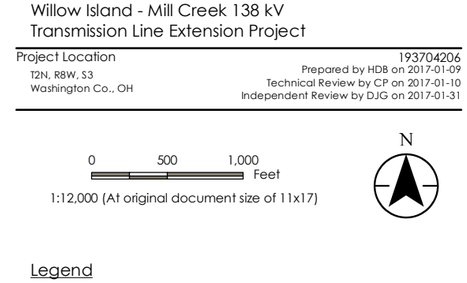
193704206
Prepared by HDB on 2017-01-09
Technical Review by CP on 2017-01-10
Independent Review by DJG on 2017-01-31

0 500 1,000 Feet

1:12,000 (At original document size of 11x17)

N

Legend
- Proposed 138kV Transmission Line
- Project Area
- Proposed Levee Station Facility



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, NADS
3. Background: USGS 7.5' Topographic Quadrangles: Belmont (OH) 1979, Marietta (OH) 1978, Valley Mills (WV) 1977, & Willow Island (WV) 1979

Stantec

Figure No.
1.2

Title
Project Layout Map

Client/Project
AEP Ohio Transmission Company, Inc.
Willow Island - Mill Creek 138 kV
Transmission Line Extension Project

Project Location
T2N, R8W, S3
Washington Co., OH

193704206
Prepared by HDB on 2017-01-09
Technical Review by CP on 2017-01-10
Independent Review by DJG on 2017-01-31

0 100 200 Feet

1:2,400 (At original document size of 11x17)

N

Legend

- Existing Pole Location
- Proposed Steel Pole Structure
- Proposed 138kV Transmission Line
- Project Area
- Proposed Levee Station Facility
- Existing AEP 138kV Transmission Line

Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, NADS
3. Orthophotography: ESRI World Imagery

Stantec

Figure No.
1.3

Title
Land Use Map

Client/Project
AEP Ohio Transmission Company, Inc.
Willow Island - Mill Creek 138 kV
Transmission Line Extension Project

Project Location
T2N, R8W, S3
Washington Co., OH

193704206
Prepared by HDB on 2017-01-09
Technical Review by CP on 2017-01-10
Independent Review by DG on 2017-01-31

0 100 200 Feet

1:2,400 (At original document size of 11x17)

N

Legend

- Existing Pole Location
- Proposed Steel Pole Structure
- Proposed 138kV Transmission Line
- Project Area
- Proposed Levee Station Facility
- Existing AEP 138kV Transmission Line
- Residence
- School*
- Cemetery*
- Church*

National Land Cover Database

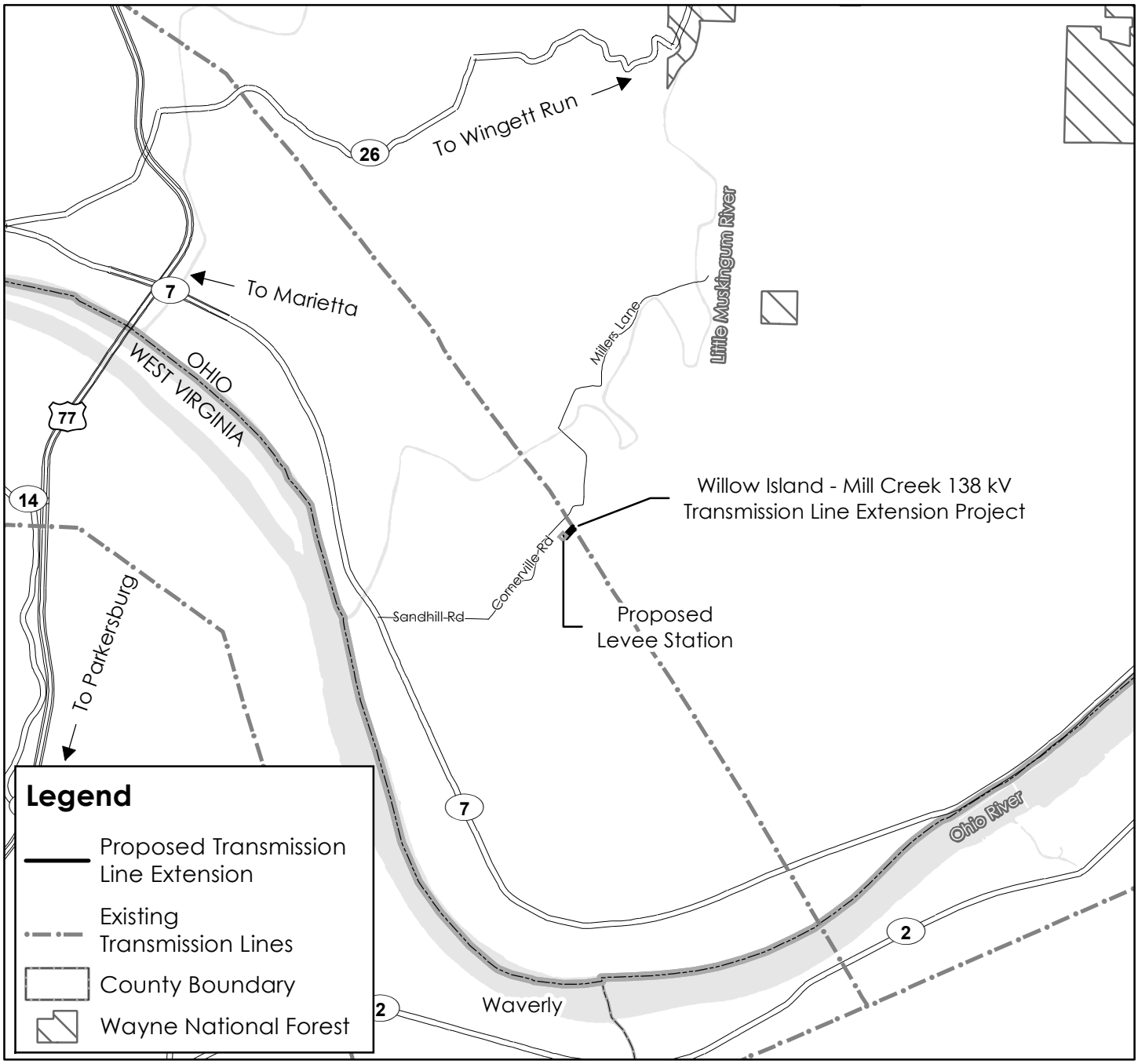
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/ Herbaceuous
- Hay/Pasture
- Cultivated Crops

*No features within map extent
**No parks, wildlife management areas or nature preserves were identified within the Project Area or its vicinity.
(Sources: ODNR, USFS, USFWS, The Nature Conservancy, PADUS)

Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, NLCD 2011, USGS, NADS
3. Orthophotography: ESRI World Imagery

Stantec

Figure 1.4 Concept Map



Appendix B Phase I Cultural Resources Management Investigations

Phase I Cultural Resource Management Investigations for the Approximately 5.6 ha (13.9 ac) Levee Station Expansion Area in Marietta Township, Washington County, Ohio

Ryan J. Weller

January 5, 2016

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Phase I Cultural Resource Management Investigations for the Approximately 5.6 ha (13.9 ac) Levee Station Expansion Area in Marietta Township, Washington County, Ohio

By

Ryan J. Weller

Submitted By:

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Prepared For:

American Electric Power
700 Morrison Road
Gahanna, OH 43230

Lead Agency:

Ohio Power Siting Board

Ryan Weller, P.I.

January 5, 2016

W-1862

Abstract

In December 2015, Weller & Associates, Inc. conducted Phase I Cultural Resource Management Investigations for the Approximately 5.6 ha (13.9 ac) Levee Station Expansion Area in Marietta Township, Washington County, Ohio. These investigations were conducted for American Electric Power and were prepared for submittal to the Ohio Power Siting Board as part of a Letter of Notification (LON). These investigations involved subsurface testing and visual inspection. A cultural resources management (CRM) survey was conducted in a manner that is reflective to Section 106 of the National Historic Preservation Act to identify any sites or properties relative to this undertaking and to evaluate them for the National Register of Historic Places (NRHP). The work involved a literature review and field investigations. These investigations did not result in the identification of any cultural materials or sites; the majority of the project area was found to be contained in steeply sloping conditions or disturbance.

This project is located to the northeast of the Community of Reno, which is just south and east of Marietta. It is an irregularly shaped parcel that is in the Northwest Quarter of Section 3. The eastern boundary is an existing electric line corridor. The project includes steep upland terrain and comparably flatter landforms in the northern part. This is an area that is drained by the Little Muskingum River and Mill Run, one of its tributaries. There are several oil wells located in the vicinity including a storage tank that is within the project area. The project area includes fallow agricultural fields that area within a rural landscape.

The literature review that was conducted for this project did not indicate that there were any previously recorded resources within the project area. There were no previous surveys or archaeological sites identified in the study area. There were 25 Ohio Historic Inventory sites and one cemetery identified in the study area; however, none of these resources were found to be adjacent to or abutting the project.

These investigations did not result in the identification of any cultural materials and much of the project area was found to be steeply sloped or disturbed; especially the southern aspect. The planned work will not directly involve any buildings that are older than 50 years. There are no significant or historic properties identified within the area of potential effect for this project area. No further work is deemed necessary for this project.

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Introduction

In December 2015, Weller & Associates, Inc. completed Phase I Cultural Resource Management Investigations for the Approximately 5.6 ha (13.9 ac) Levee Station Expansion Area in Marietta Township, Washington County, Ohio (Figures 1-3). The work was completed under contract with Ohio Power Company. These investigations were conducted for due diligence purposes if a federal action or agency were to be involved and for the Ohio Power Siting Board (OPSB). The survey is to identify any sites or properties and to evaluate them for the National Register of Historic Places (NRHP) in a manner that is reflective of Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 [36 CFR 800]). This report summarizes the results of the fieldwork and literature review. The report format and design are similar to that established in *Archaeology Guidelines* (Ohio Historic Preservation Office [OHPO] 1994).

Chad Porter conducted the literature review on December 28, 2015. Ryan Weller served as the Principal Investigator and project manager. The field crew included Joshua Engle, Seth Cooper, and Matt Sanders. The report preparation was by Ryan and Chad Porter.

Project Description

AEP is proposing to build Levee Station that is to be located in to the northeast of the community of Reno in Washington County, Ohio. The project area is located to the southeast of CR 348. The eastern boundary approaches an unnamed tributary of Mill Run as well as an existing electric line corridor. The project involves a 5.6 ha (13.9 ac) area which will contain the construction of a distribution station as well as connecting or tap lines to an existing and adjacent 138kV electric line.

Environmental Setting

Climate

Washington County, like all of Ohio, has a continental climate, with hot and humid summers and cold winters. About 99 cm (39 in) of precipitation fall annually on the county with the average monthly precipitation about 8 cm (3.3 in). February is the driest month, while July tends to be the wettest month for Washington County [United States Department of Agriculture, Soil Conservation Service (USDA, SCS) 1977].

Physiography, Relief, and Drainage

Washington County is located within the Allegheny Plateaus physiographic region of Ohio. More specifically, the project is located on the Marietta Plateau physiographic region. This region is characterized by "dissected, high relief plateau, remnants of ancient lacustrine clay-filled Teays drainage system common, elevations 515-1400 ft" (Brockman 1998). The project area is drained Mill Run and an unnamed tributary of Mill Run; this flows into the Little Muskingum River and then into the Ohio River. There are no situations where deep alluvial deposits are expected.

Geology

The project is situated in the Marietta Plateau. The underlying bedrock is from the Permian- and Pennsylvanian-era sedimentary rocks (Brockman 1998; USDA, SCS 1977:3). The geology of the project consists of shales, siltstones, coals, and sandstones (Brockman 1998) relative to the Allegheny, Conemaugh, and Monongahela, and Washington Series.

Soils

The project area is situated in the Gilpin-Upshur-Vandalia soil association; an unglaciated upland type. There are six specific soils involved in this project (Table 1). Most of the soils, especially those located in the southern part of the project, are contained in steeply sloping (>15 percent) upland conditions. There is an unnamed stream valley where Hartshorn soils are prevalent, but this is likely a very minimal part of the project. There are no deep alluvial soils in the project area.

Table 1. Soils in the Project Area.

Soil Symbol	Soil Name	% Slope	Location
GnB	Glenford silt loam	2-6	Upland slackwater terraces
He	Hartshorn silt loam	0-6, 6-12	Upland stream valleys
VaD	Vandalia silty clay loam	12-18	Side slopes
UpE	Upshur silty clay loam	18-25	Side slopes
WtC	Woodsfield silt loam	6-12	Sloping uplands
GlG	Gilpin-Summitville-Upshur complex	35-70	Side slopes

Flora

There is, or at least was, great floral diversity in Ohio. This diversity is relative to the soils and the terrain that generally includes the till plain, lake plain, terminal glacial margins, and unglaciated plateau (Forsyth 1970). Three major glacial advances, including the Kansan, Illinoisan, and Wisconsinan, have affected the landscape of Ohio. The effects of the Wisconsin glaciation are most pronounced and have affected more than half of the state (Pavey et al. 1999).

The least diverse part of Ohio extends in a belt from the northeast below the lake-affected areas through most of western Ohio (Gordon 1966). These areas are part of the late Wisconsin ground moraine and lateral end moraines. It is positioned between the lake plains region and the terminal glacial moraines. This area included broad forested areas of beech maple forests interspersed with mixed oak forests in elevated terrain or where relief is greater (Forsyth 1970; Gordon 1966). Prairie environments such as those in Wyandot and Marion County areas would contain islands of forests, but were mostly expansive open terrain dominated by grasses.

The northwestern Ohio terrain is nearly flat because of ancient glacial lakes and glaciation, which affected the flora. However, the vegetation was more diverse than the till plain to the south and east because of the variety of factors that contributed to its terrain. Forests within the Black Swamp were generally comprised of elm/ash stands;

however, dissected areas along drainages and drier, elevated areas from beach deposits would contain mixed forests of oak and hickory (Gordon 1966, 1969). There was little upland floral diversity in the lake plains (Black Swamp region) except for the occasional patches of oak and hickory. Floral variety was most evident in narrow sleeves along larger stream valleys where there was relief.

The most biological diversity in Ohio is contained within the Allegheny Plateau, which encompasses the southeastern two-thirds of the state (Sheaffer and Rose 1998). Because this area is higher and has drier conditions, it is dominated by mixed oak forests. Some locations within the central part of this area contain beech and mixed mesophytic forests. There are large patches of oak and sugar maple forests to the south of the terminal moraine from Richland to Mahoning County (Gordon 1966).

Southwestern Ohio from about Cincinnati to Bellefontaine east to the Scioto River historically contained a very diverse floral landscape. This is an area where moraines from three glacial episodes are prevalent (Pavey et al. 1999). Forests in this area include elm-ash swamp, beech, oak-sugar maple, mixed mesophytic, prairie grasslands, mixed oak, and bottomland hardwoods (Core 1966; Gordon 1966, 1969). These forest types are intermingled with prairies being limited to the northern limits of this area mostly in Clark and Madison Counties.

Generally, beech forests are the most common variety through Ohio and could be found in all regions. Oak and hickory forests dominated the southeastern Ohio terrain and were found with patchy frequency across most of northern Ohio. Areas that were formerly open prairies and grasslands are in glacial areas, but are still patchy. These are in the west central part of the state. Oak and sugar maple forests occur predominantly along the glacial terminal moraine. Elm-ash swamp forests are prevalent in glaciated areas including the northern and western parts of Ohio (Gordon 1966; Pavey et al. 1999).

The project corridor is located in southern Washington County. This is an area where the uplands are considered as predominately mixed oak forestation (Gordon 1966).

Fauna

The upland forest zone offered a diversity of mammals to the prehistoric diet. This food source consisted of white-tailed deer, black bear, Eastern cottontail rabbit, opossum, a variety of squirrels, as well as other less economically important mammals. Several avian species were a part of the upland prehistoric diet as well (i.e. wild turkey, quail, ruffed grouse, passenger pigeon, etc.). The lowland zone offered significant species as well. Raccoon, beaver, and muskrat were a few of the mammals, while wood duck and wild goose were the economically important birds. Fishes and shellfish were also an integral part of the prehistoric diet. Ohio muskellunge, yellow perch, white crappie, long nose gar, channel catfish, pike, and sturgeon were several of the fish, whereas, the Ohio naiad mollusc, butterfly's shell, long solid, common bullhead, knob rockshell, and cod shell were the major varieties of shellfish. Reptiles and amphibians, such as several varieties of snakes, frogs, and turtles, were also part of the prehistoric diet (Trautman 1981; Lafferty 1979; Mahr 1949).

Cultural Setting

The first inhabitants of Ohio were probably unable to enter this land until the ice sheets of the Wisconsin glacier melted around 14,000 B.C. Paleoindian sites are considered rare due to the age of the sites and the effects of land altering activities such as erosion. Such sites were mostly used temporarily and thus lack the accumulation of human occupational deposits that would have been created by frequent visitation. Paleoindian artifact assemblages are characteristic of transient hunter-gatherer foraging activity and subsistence patterns. In Ohio, major Paleoindian sites have been documented along large river systems and near flint outcrops in the Unglaciated Plateau (Cunningham 1973). Otherwise, Paleoindian sites in the glaciated portions of Ohio are encountered infrequently and are usually represented by isolated finds or open air scatters.

The Paleoindian period is characterized by tool kits and gear utilized in hunting Late Pleistocene megafauna and other herding animals including but not limited to short-faced bear, barren ground caribou, flat-headed peccary, bison, mastodon, giant beaver (Bamforth 1988; Brose 1994; McDonald 1994). Groups have been depicted as being mobile and nomadic (Tankersley 1989); artifacts include projectile points, multi-purpose unifacial tools, burins, gravers, and spokeshaves (Tankersley 1994). The most diagnostic artifacts associated with this period are fluted points that exhibit a groove or channel positioned at the base to facilitate hafting. The projectiles dating from the late Paleoindian period generally lack this trait; however, the lance form of the blade is retained and is often distinctive from the following Early Archaic period (Justice 1987).

The Archaic period has been broken down into three sub-categories, including the Early, Middle, and Late Archaic. During the Early Archaic period (ca. 10,000-8000 B.P.), the environment was becoming increasingly arid as indicated by the canopy (Shane 1987). This period of dryness allowed for the exploitation of areas that were previously inaccessible or undesirable. The Early Archaic period does not diverge greatly from the Paleoindian regarding the type of settlement. Societies still appear to be largely mobile with reliance on herding animals (Fitting 1963). For these reasons, Early Archaic artifacts can be encountered in nearly all settings throughout Ohio. Tool diversity increased at this time including hafted knives that are often re-sharpened by the process of beveling the utilized blade edge and intense basal grinding (Justice 1987). There is a basic transition from lance-shaped points to those with blades that are triangular. Notching becomes a common hafting trait. Another characteristic trait occurring almost exclusively in the Early and Middle Archaic periods is basal bifurcation and large blade serrations. Tool forms begin to vary more and may be a reflection of differential resource exploitation. Finished tools from this period can include bifacial knives, points, drills/perforators, utilized flakes, and scrapers.

The Middle Archaic period (8000-6000 B.P.) is poorly known or understood in archaeological contexts within Ohio. Some (e.g., Justice 1987) regard small bifurcate points as being indicative of this period. Ground stone artifacts become more prevalent at this time. Other hafted bifaces exhibit large side notches with squared bases, but this same trait can extend back to the Paleoindian period. The climate at this time is much like that of the modern era. Middle Archaic period subsistence tended to be associated with small patch foraging that involved a consistent need for mobility with a shift

towards stream valleys (Stafford 1994). Sites encountered from this time period throughout most of Ohio tend to be lithic scatters or isolated finds. The initial appearance of regional traits may be apparent at this time.

The Late Archaic period in Ohio (ca 6000-3000 B.P.) diverges from the previous periods in many ways. Preferred locations within a regional setting appear to have been repeatedly occupied. The more intensive and repeated occupations often resulted in the creation of greater social and material culture complexity. The environment at this time is warmer and drier. Most elevated landforms in northeastern Ohio have yielded Archaic artifacts (Prufer and Long 1986: 7), and the same can be stated for the remainder of Ohio.

Various artifacts are diagnostic of the Late Archaic period. Often, burial goods provide evidence that there was some long-distance movement of materials, while lithic materials used in utilitarian assemblages are often from a local chert outcrop. There is increased variation in projectile point styles that may reflect regionalism. Slate was often used in the production of ornamental artifacts. Ground and polished stone artifacts reached a high level of development. This is evident in such artifacts as grooved axes, celts, bannerstones, and other slate artifacts.

It is during the Terminal Archaic period (ca 3500-2500 B.P.) that extensive and deep burials are encountered. Cultural regionalism within Ohio is evident in the presence of Crab Orchard (southwest), Glacial Kame (northern), and Meadowood (central to Northeastern). Along the Ohio River, intensive occupations have been placed within the Riverton phase. Pottery makes its first appearance during the Terminal Late Archaic.

The Early Woodland period (ca 3000-2100 B.P.) in Ohio is often associated with the Adena culture and the early mound builders (Dragoo 1976). Early and comparably simple geometric earthworks first appear with mounds more spread across the landscape. Pottery at this time is thick and tempered with grit, grog, or limestone; however, it becomes noticeably thinner towards the end of the period. There is increased emphasis on gathered plant resources, including maygrass, chenopodium, sunflower, and squash. Habitation sites have been documented that include structural evidence. Houses that were constructed during this period were circular, having a diameter of up to 18.3 m (Webb and Baby 1963) and often with paired posts (Cramer 1989). Artifacts dating from this period include leaf-shaped blades with parallel to lobate hafting elements, drilled slate pieces, ground stone, thick pottery, and increased use of copper. Early Woodland artifacts can be recovered from every region of Ohio.

The Middle Woodland period (ca 2200-1600 B.P.) is often considered to be equivalent with the Hopewell culture. The largest earthworks in Ohio date from this period. There is dramatic increase in the appearance of exotic materials that appear most often in association with earthworks and burials. Artifacts representative of this period include thinner, grit-tempered pottery, dart-sized projectile points (Lowe Flared, Steuben, Snyders, and Chesser) [Justice 1987], exotic materials (mica, obsidian, and marine shell, etc.). The points are often thin, bifacially beveled, and have flat cross sections. There seems to have been a marked increase in the population as well as increased levels of social organization. Middle Woodland sites seem to reflect a seasonal exploitation of the environment. There is a notable increase in the amount of Eastern Agricultural Complex

plant cultigens, including chenopodium, knotweed, sumpweed, and little barley. This seasonal exploitation may have followed a scheduled resource extraction year in which the populations moved camp several times per year, stopping at known resource extraction loci. Middle Woodland land use appears to center on the regions surrounding earthworks (Dancey 1992; Pacheco 1996); however, there is evidence of repeated occupation away from earthworks (Weller 2005a). Household structures at this time vary with many of them being squares with rounded corners (Weller 2005a). Exotic goods are often attributed to funerary activities associated with mounds and earthworks. Utilitarian items are more frequently encountered outside of funerary/ritual contexts. The artifact most diagnostic of this period is the bladelet, a prismatic and thin razor-like tool, and bladelet cores. Middle Woodland remains are more commonly recovered from central Ohio south and lacking from most areas in the northern and southeastern part of the state.

The Late Woodland period (ca A.D. 400-900) is distinct from the previous period in several ways. There appears to be a population increase and a more noticeable aggregation of groups into formative villages. The villages are often positioned along large streams, on terraces, and were likely seasonally occupied (Cowan 1987). This increased sedentism was due in part to a greater reliance on horticultural garden plots, much more so than in the preceding Middle Woodland period. The early Late Woodland groups were growing a wide variety of crop plants that are collectively referred to as the Eastern Agricultural Complex. These crops included maygrass, sunflower, and domesticated forms of goosefoot and sumpweed. This starch and protein diet was supplemented with wild plants and animals. Circa A.D. 800 to 1000, populations adopted maize agriculture, and around this same time, shell-tempered ceramics appear. Other technological innovations and changes during this period included the bow and arrow and changes in ceramic vessel forms.

The Late Prehistoric period (ca A.D. 1000-1550) is distinctive from former periods. The Cole complex (ca A.D. 1000-1300) has been identified in central and south central Ohio. Sites that have been used to define the Cole complex include the W.S. Cole (33DL11), Ufferman (33DL12), and Decco (33DL28) sites along the Olentangy; the Zencor Village site, located along the Scioto River in southern Franklin County; and the Voss Mound site (33FR52), located along the Big Darby Creek in southwestern Franklin County. It has been suggested that this cultural manifestation developed out of the local Middle Woodland cultures and may have lasted to be contemporaneous with the Late Prehistoric period (Barkes 1982; Baby and Potter 1965; Potter 1966). Cole is a poorly defined cultural complex as its attributes are a piecemeal collection gathered from various sites. Some have suggested that it may be associated with the Fort Ancient period (Pratt and Bush 1981). Artifacts recovered from sites considered as Cole include plain and cordmarked pottery, triangular points, Raccoon Notched points, chipped slate discs, rectangular gorgets, and chipped stone celts. The vessels often have a globular form with highly variable attributes and rim treatment. There have been few structures encountered from this period, but those that have are typically rounded or circular (Pratt and Bush 1981; Weller 2005b).

Monongahela phase sites date to the Late Prehistoric to Contact period in eastern Ohio. Monongahela sites are typically located on high bottomlands near major streams, on saddles between hills, and on hilltops, sometimes a considerable distance from water

sources. Most of these sites possessed an oval palisade, which surrounded circular house patterns. Burials of adults are usually flexed and burial goods are typically ornamental. A large variety of stone and bone tools are found associated with Monongahela sites. Monongahela pottery typically is plain or cordmarked with a rounded base and a gradually in-sloping shoulder area. Few Euro-American trade items have been found at Monongahela sites (Drooker 1997).

Protohistoric to Settlement

By the mid-1600s, French explorers traveled through the Ohio country as trappers, traders, and missionaries. They kept journals about their encounters and details of their travels. These journals are often the only resource historians have regarding the early occupants of seventeenth century Ohio. The earliest village encountered by the explorers in 1652 was a Tionontati village located along the banks of Lake Erie and the Maumee River. Around 1670, it is known that three Shawnee villages were located along the confluence of the Ohio River and. the Little Miami River. Because of the Iroquois Wars, which continued from 1641-1701, explorers did not spend much time in the Ohio region, and little else is known about the natives of Ohio during the 1600s. Although the Native American tribes of Ohio may have been affected by the outcome of the Iroquois Wars, no battles occurred in Ohio (Tanner 1987).

French explorers traveled extensively through the Ohio region from 1720-1761. During these expeditions, the locations of many Native American villages were documented. In 1751, a Delaware village known as Maguck existed near present-day Chillicothe. In 1758, a Shawnee town known as 'Lower Shawnee 2' existed at the same location. The French also documented the locations of trading posts and forts, which were typically established along the banks of Lake Erie or the Ohio River (Tanner 1987).

While the French were establishing a claim to the Ohio country, many Native Americans were also entering new claims to the region. The Shawnee were being forced out of Pennsylvania because of English settlement along the eastern coast. The Shawnee created a new headquarters at Shawnee Town, which was located at the mouth of the Scioto River. This headquarters served as a way to pull together many of the tribes which had been dispersed because of the Iroquois Wars (Tanner 1987).

Warfare was bound to break out as the British also began to stake claims in the Ohio region by the mid-1700s. The French and Indian War (1754-1760) affected many Ohio Native Americans; however, no battles were recorded in Ohio (Tanner 1987). Although the French and Indian War ended in 1760, the Native Americans continued to fight against the British explorers. In 1764, Colonel Henry Bouquet led a British troop from Fort Pitt, Pennsylvania to near Zanesville, Ohio.

In 1763, the Seven Years' War fought between France and Britain, also known as the French and Indian War ended with The Treaty of Paris. In this Peace of Paris, the French ceded their claims in the entire Ohio region to the British. When the American Revolution ended with the Second Treaty of Paris in 1783, the Americans gained the entire Ohio region from the British; however, they designated Ohio as Indian Territory. Native Americans were not to move south of the Ohio River but Americans were

encouraged to head west into the newly acquired land to occupy and govern it (Tanner 1987).

By 1783, Native Americans had established fairly distinct boundaries throughout Ohio. The Shawnee tribes generally occupied southwest Ohio, while the Delaware tribes stayed in the eastern half of the state. Wyandot tribes were located in north-central Ohio, and Ottawa tribes were restricted to northeast Ohio. There was also a small band of Mingo tribes in eastern Ohio along the Ohio River, and there was a band of Mississauga tribes in northeastern Ohio along Lake Erie. The Shawnee people had several villages within Ross County along the Scioto River (Tanner 1987). Although warfare between tribes continued, it was not as intense as it had been in previous years. Conflicts were contained because boundaries and provisions had been created by earlier treaties.

In 1795, the Treaty of Greenville was signed as a result of the American forces defeat of the Native American forces at the Battle of Fallen Timbers. This allocated the northern portion of Ohio to the Native Americans, while the southern portion was opened for Euro-American settlement. Although most of the battles which led up to this treaty did not occur in Ohio, the outcome resulted in dramatic fluctuations in the Ohio region. The Greenville Treaty line was established, confining all Ohio Native Americans to northern Ohio, west of the Tuscarawas River (Tanner 1987).

Ohio Native Americans were again involved with the Americans and the British in the War of 1812. Unlike the previous wars, many battles were fought in the Ohio country during the War of 1812. By 1815, peace treaties began to be established between the Americans, British, and Native Americans. The Native Americans lost more and more of their territory in Ohio. By 1830, the Shawnee, Ottawa, Wyandot, and Seneca were the only tribes remaining in Ohio. These tribes were contained on reservations in northwest Ohio. By the middle 1800s, the last of the Ohio Native Americans signed treaties and were removed from the Ohio region.

Washington County History

In 1788, a group of Ohio Company explorers, surveyors, and settlers, including 48 men led by General Rufus Putnam, founded Marietta (Andrews 1902; Howe 1888; Williams Bros. 1881). This was the first, permanent American settlement in the Northwest Territory. Major John Doughty had built Fort Harmer three years previous but it had been abandoned and would be rebuilt and reoccupied. Campus Martius, later to be called Marietta, was that place of entry and settlement (Andrews 1902). These men had arrived in April; Governor Arthur St. Clair followed that July to begin his governance of the Northwest Territory from this preliminary seat in the forests of Ohio (Williams Bros. 1881). Upon Governor St. Clair's arrival, he created Washington County as a subdivision of the Ohio Territory. At that time, the county was nearly half the size of the current State. Most of the early history of Washington County however, contained itself to the present bounds and the region surrounding Marietta (Andrews 1902; Howe 1888; Williams Bros. 1881). Due to the dispute with Northwestern Indian tribes over the ownership of Ohio lands, the settlements were heavily fortified or had forts nearby (Fort Harmer, Campus Martius, Farmes Castle, Fort Freye, and Fort Tyler). Settlers followed peace into the county (Andrews 1902; Howe 1888; Williams Bros. 1881).

With the considerable organization of the Ohio Company, growth and progress was almost immediate in Washington County. There was a school in session the first year of occupation. Major Anselm Tupper taught it (Andrews 1902). Once relative peace came to the region and civil growth could take place outside the blockhouses, real growth began. The Congregational Church had organized back east, before settlement or even migration. Their own building, The Two Horn Church, was the oldest church in Ohio (Howe 1888). Within a decade, a formal academy was in operation. Muskingum Academy was both an educational and a religious edifice and continued as such many years. Washington County also boasts the state's first library, kept at the house of Isaac Pierce. These were books belonging to General Israel Putnam which were removed to Ohio after his death in 1795, by his son Colonel Israel Putnam. As such, it was known first as the Putnam Library, but later as the Belpre Library or the Belpre Farmer's Library.

Early settlers relied heavily on agriculture for subsistence and cultivated the broad valley floors of the Ohio and Muskingum Rivers. Fruit farming was important in Marietta with peaches being the most popular. In 1791, Captain Jonathan Devol built a floating mill, which went up and down the Ohio River servicing local farmers. After 1812, steamboats became the primary mode of transportation along the Ohio River (Williams Bros. 1881). In 1823, the Marietta Steam Boat Company was established on the Little Muskingum River. In 1837, the Muskingum River improvement led to the construction of a series of dams and locks along the Muskingum River to improve canal and steamboat travel. As river transportation improved, new markets opened for agricultural products allowing surplus flour, meal, pork, beef, and wool to be sold for additional economic profit (Andrews 1902; Williams Bros. 1881).

The first railroad constructed in Washington County was the Baltimore and Ohio Railroad built in 1857 (Andrews 1902). This connected Marietta with Athens and Cincinnati, which led to an increase in industries such as agriculture, oil, clay, shale, and sandstone. Oil was discovered at Duck Creek in the 1860's leading to a peak in petroleum production between 1890 and 1910. After World War I agriculture declined in Washington County and other industries were developed such as coal, forestry, and oil (Wright 1953).

As mentioned, Marietta was the first permanent and continually occupied settlement in Ohio; moreover, within the Northwest Territory. As such, it is no surprise that this town is and always was the county seat of Washington County. Upon entering this area, the Ohio Company men discovered that the Muskingum River valley and its surrounding banks and ridge tops were teeming with prehistoric earthworks testifying to the extinct civilization who previously had built and lived in this same location. The directors of the Ohio Company admired these sites and provided for their protection and preservation. The act creating the Town of Marietta came several years later in 1801. Dudley Woodbridge was the first storeowner in the Northwest Territory, having located on the corner of Muskingum and Ohio Streets. Many of the later stores lined the river in Marietta and Harmer. The location of Marietta on two navigable rivers made the community a center for commerce and industry early in its development. Shipbuilding

was one of the first industries in Marietta and this drove the city to became an important early manufacturing and transportation hub (Andrews 1902).

Aside from Marietta, Belpre is the only other incorporated city in the county. There are five incorporated towns: Beverly, Lowell, Lower Salem, Macksburg, and Matamoras. It is made up of 22 townships, and it contains 15 unincorporated villages. Most of the growth, and therefore, most of the notable history in the county is contained within Marietta and to a lesser degree Belpre.

Marietta Township History

Marietta Township was organized in the year 1790. It is located in the southern portion of Washington County. Neighboring townships include Fearing to the north, Newport to the east and Warren to the west. The topography is primarily hilly and broken by numerous streams that feed into the Muskingum River (Howe 1854).

Shortly after European settlement large acres of wooded area were removed for agricultural pursuits. The timber was used in the construction of homes, churches, schools and other various activities important during early pioneer life. Schools and churches during this time were usually single room log constructions with a chimney. Sometimes the church meetings were held in a private residence when funds were not available. Religion was a key factor in the early days of settlement. It gave residents a code to live by and strengthened their communities through its teachings which also were used to create policy (Andrews 1902).

Many of the immigrants to the area came from New England. The main products in Marietta Township were corn, wheat, oats, wool and fruits. Although agriculture was a major leader in Marietta Township's economy, ship building was a very prominent one as well. This provided work for many residents in the township. Because of its location on the Muskingum River, the importing and exporting of goods was made easier (Andrews 1902).

Research Design

The purpose of a Phase I survey is to locate and identify cultural resources that will be affected by the planned station construction. This includes archaeological deposits as well as architectural properties that are older than 50 years. However, the plans do not indicate that any buildings older than 50 years will be taken (i.e., razed or removed) as a result of the construction activities. Once these resources are identified and sampled, they are evaluated for their eligibility or potential eligibility to the National Register of Historic Places (NRHP). The literature review aspect of these investigations is directed to answer or address the following questions:

1) Did the literature review reveal anything that suggests the project had been previously surveyed and what is the relationship of previously recorded properties to the project?
2) Are cultural resources likely to be identified in the project?

Archaeological Field Methods

The survey conducted within the project used three methods of sampling and testing to identify and evaluate cultural resources. These included shovel test unit excavation, shovel probe excavation, and visual inspection.

Shovel test unit excavation. Shovel test units were placed at 15-m intervals. Shovel test units measure 50 cm on a side and are excavated to 10 cm below the topsoil/subsoil interface. Individual shovel test units were documented regarding their depth, content and color (Munsell). All of the undisturbed soil matrices from shovel test units are screened using .6 cm hardware mesh.

Shovel probes. These are excavated in locations where disturbance is not obvious at the surface. They are initiated as shovel test units and are excavated to about 20 cm at a minimum before they are abandoned due to severe disturbance. If the soil is not disturbed, the shovel probe becomes a shovel test unit.

Visual inspection. The locations where cultural resources were not expected, such as disturbed or low/wet areas, were walked over and visually inspected. This also pertains to small segments that are immediately adjacent to the road right-of-way or were in steeply sloping conditions. This method was used to verify the absence or likelihood of any cultural resources being located in these areas. It was also utilized to document the general terrain and the surrounding area.

The application of the resulting field survey methods was documented in field notes, field maps, and project plan maps.

Curation

There were no cultural materials identified during these investigations. Notes and maps affiliated with this project will be maintained at Weller & Associates, Inc. files.

Literature Review

The literature review study area is defined as a 1.6 km (1.0 mi) radius centered on the project area (Figure 2). In conducting the literature review, the following resources were consulted at OHPO and the State Library of Ohio:

1) *Archeological Atlas of Ohio* (Mills 1914);
2) OHPO United States Geological Survey (USGS) 7.5' series topographic maps;
3) Ohio Archaeological Inventory (OAI) files;
4) Ohio Historic Inventory (OHI) files;
5) National Register of Historic Places (NRHP) files;
6) Determinations of Eligibility (DOE) files;
7) OHPO CRM/contract archaeology files; and
8) Washington County atlases, histories, historic USGS 15'series topographic map(s), and current USGS 7.5' series topographic map(s).

A review of *Archeological Atlas of Ohio* (Mills 1914) was conducted and there are no associated sites identified in the study area.

The OHPO topographic maps indicated that there are no sites recorded in the study area.

The Ohio Historic Inventory (OHI) files did not indicate any resources located within the project area; there are 25 listed in the study area. None of these resources are adjacent to the project area, but several are within view of it (Figure 2).

Table 2. Ohio Historic Inventory resources within the study area.

OHI #	*PRESENT NAME*	*ADDRESS*	*ARCHITECTURAL STYLE*	*HISTORIC USE*	*ACTIVITY*	*DATE*
WAS0139017	Harris Family House	CR 9	Vernacular	Single Dwelling	Original Construction	1860
WAS0139117		CR 9	Vernacular	Single Dwelling	Original Construction	1870
WAS0139217		CR 9	Vernacular	Single Dwelling	Original Construction	1880
WAS0139317	Little Muskingum Congregation	CR 9 & CR 20	Greek Revival	Church/Religious Structure	Original Construction	1843
WAS0139417	Thurman Worstell House	CR 9 & CR 20	Vernacular	Single Dwelling	Original Construction	1870
WAS0139617	Sandhill Methodist E Church	CR 20 & TR 349 & TR 348	Gothic Revival	Church/Religious Structure	Original Construction	1900
WAS0140217	Dale Hockenberry House	CR 20	Vernacular	Single Dwelling	Original Construction	1850
WAS0140317	Roberta Baker House	CR 20 & CR 9	Vernacular	Single Dwelling	Original Construction	1920
WAS0140417	Jarold Schramm House	CR 20	Vernacular	Single Dwelling	Original Construction	1898
WAS0140617	Robert Taylor House	CR 20 (Sandhill-Cornersville R	Queen Anne	Single Dwelling	Original Construction	1913
WAS0141717	Carl & John Sigel House	Morning Side Dr	Queen Anne	Single Dwelling	Original Construction	1903
WAS0142017	Grose Family House	180 Smith Rd	Vernacular	Single Dwelling	Original Construction	1890
WAS0146618	Carl Heinrich House	T-47 (End)	Queen Anne	Single Dwelling	Original Construction	1894
WAS0147417		T-348 & C-20	Vernacular	Single Dwelling	Original Construction	1900
WAS0147517	Marlene & Barry	T-348 & C-20	Vernacular	Single Dwelling	Original Construction	1900

	Murphy House					
WAS0147617	Denny Swartz Farm	T-348 & C-20	Vernacular	Single Dwelling	Original Construction	1860
WAS0147717	Elsie Swartz Farm	T-348 & T-47	Federal	Single Dwelling	Original Construction	1792
WAS0147817		T-348 & T-47	Vernacular	Single Dwelling	Original Construction	1890
WAS0147917	George Cady House	T-348 & T-47	Vernacular	Church/Religious Structure	Original Construction	1848
WAS0148017	Roxanne & Larry Wheeler	T-349 & C-20	Vernacular	Single Dwelling	Original Construction	1880
WAS0148617	Rex Hill House	I-540 (Mill Run Rd)	Vernacular	Single Dwelling	Original Construction	1870
WAS0148717	Audrey Hill House	T-540 (Mill Run Rd)	Vernacular	Single Dwelling	Original Construction	1923
WAS0148817	Kevin Welch House	T-540 (Mill Run Rd)	Vernacular	Single Dwelling	Original Construction	1890
WAS0290117	Cornerville Bridge	CR 20 over Little Muskingum			Original Construction	1886
WAS0295917	Cline Bridge	CR 348 over Mill Run			Original Construction	1904

A review of the DOE and NRHP files was conducted and there are no affiliated resources within or near the project area or its study area.

Review of the professional CRM survey files indicated that there have not been any surveys conducted in the study area.

Historic cartographic resources were reviewed in order to get a better understanding of past landowners and the distribution of past buildings and structures. *The Atlas of Washington County, Ohio* (Lake 1875) indicates that the project area was on the C.S. Thorniley property and there is no residence in the vicinity. The USGS *1927 Marietta, Ohio 15 Minute Series (Topographic)* map (Figure 4) indicates that there are no buildings involved in this project. The modern USGS *1992 Marietta, Ohio 7.5 Minute Series (Topographic)* map further indicates that there are no residences in the project area. The McGee Cemetery is located to the southwest of the project area; it will not be impacted.

Literature Review Summary and Expectations

The project area is situated in an upland setting and does not involve any large drainages. This is a somewhat inconspicuous area that is to the south of the Little Muskingum River and northeast of the Community of Reno. There are no recorded archaeological resources in the area, and there have not been any surveys involved in the

study area. There are numerous architectural resources in the study area. It would be expected that any evidence for cultural activity would be relative to historic period residential locations or nearer elevated landforms abutting streams. Neither of these situations are consistent with the project. Inspection of soils survey mapping indicates that much of this area, approximately the southern half, is contained in steeply sloping conditions (i.e., >15 percent). Based on the information from the environmental section of this report and the literature review, cultural materials are not expected to be identified in the project area.

Fieldwork Results

The field investigations for this project were conducted on December 31, 2015. This work was conducted during suitable weather conditions as the temperatures were near 50 degrees Fahrenheit. The fieldwork involved subsurface testing and visual inspection (Figures 5-9). The project area is located to the southeast of CR 348. The eastern boundary approaches an unnamed tributary of Mill Run as well as an existing electric line corridor. The southern and western project boundaries are at property lines. The fieldwork identified situations where visual inspection was appropriate due to either disturbance or steep slope. The archaeological investigations were conducted in suitable areas and did not identify any cultural materials.

At the time of survey, the project area was contained in a cattle pasture and the ground cover included grasses and alfalfa. The datum of the field investigations was established in the northeastern corner of the area. Shovel test units were excavated throughout the undisturbed and suitably sloped aspects of the project. There were 119 shovel test units excavated during these investigations. The testing identified a dark yellowish brown (10YR4/4) silt loam topsoil (i.e., plowzone) over a dark yellowish brown (10YR4/6) silt loam subsoil. The interface between these levels is abrupt and clear, which is indicative of a plowzone (Figure 10). There were few rocks or gravels identified in these soils and the plowzone's depth ranged from 20-28 cm below ground surface. There were no cultural materials identified during the subsurface testing.

Visual inspection was conducted in some locations to verify the steep nature of the terrain or disturbances. Disturbance within the project area was relative to oil drilling and storage operations that are present within the project area. There is a storage tank located in the northwestern part of the area and next to the CR 348 right-of-way. The oil rig is more centrally located within the project area. It was clear upon examination that the soils in the vicinity of these areas was severely disturbed, but for a very limited area surrounding them as farming was maintained otherwise. Steeply sloping conditions (>15 percent) were identified/verified in the southern part of the project area. This confirmed what was indicated by the soil survey that noted sloping soils in this area.

These investigations did not result in the identification of any cultural materials. The work was limited by the nature of the terrain (i.e., steeply sloping conditions) and severe disturbance as was associated with an oil well and its affiliated storage tank. The testing encountered plowzone-depth topsoils consisting of generally rock-free silt loam. The findings, the lack of any identified cultural materials, was expected from this project based on its location and the author's knowledge of this region.

APE Definition and NRHP Determination

The APE is a term that must be applied on an individual project basis. The nature of the project or undertaking is considered in determining the APE. This may include areas that are off the property or outside of the actual project's boundaries to account for possible visual impacts. Archaeological investigations are typically limited to the footprint of the construction activity and a limited area around it if deemed appropriate and depending upon the type of construction. The project plans involve the construction of a small distribution station within a larger 5.6 ha (13.9 ac) (5.6 ha/13.9 ac) area. This is to be located in a lower area that is largely shielded from view by the nature of the steep, upland setting as well as deciduous forestation. Inspection of the surrounding terrain noted that the project is located in a rural setting. The majority of the residences that are in the vicinity are modern or date from the latter part of the twentieth century. The APE for this project is limited by the nature of the terrain and includes the footprint of the entire parcel; however, the actual construction is limited to a small area within the parcel. In respect of any possible affects to resources in the surrounding area, the fact that an existing 138kV electric line is in the area was taken into consideration.

The literature review did not identify any architectural or archaeological resources located within the project area. There is a cemetery in the study area, but it is not near the project. There are scattered OHIs recorded in the study area, and some of which are in the vicinity of the planned project. Visual inspection of street views and on-site inspection indicated that some of these resources were no longer extant, not visible from the project, or not considered to be significant. The construction of numerous modern single-family residences in the vicinity of the project has further detracted from the rural feel and nature of the setting.

There were no cultural materials identified. Considering the footprint of the project construction and what is regarded as the APE, a finding of no historic properties or landmarks affected is deemed appropriate.

Recommendations

In December 2015, Weller & Associates, Inc. completed Phase I Cultural Resource Management Investigations for the Approximately 5.6 ha (13.9 ac) Levee Station Expansion Area in Marietta Township, Washington County, Ohio. The field investigations involved subsurface testing and visual inspection. The survey did not result in the identification of any cultural materials. It is Weller's opinion that this project will not affect any significant archaeological sites or historic properties. A recommendation of no further work is considered and a consideration 'no historic properties or landmarks affected' is appropriate.

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Figures

Figure 1. Political map of Ohio showing the approximate location of the project.

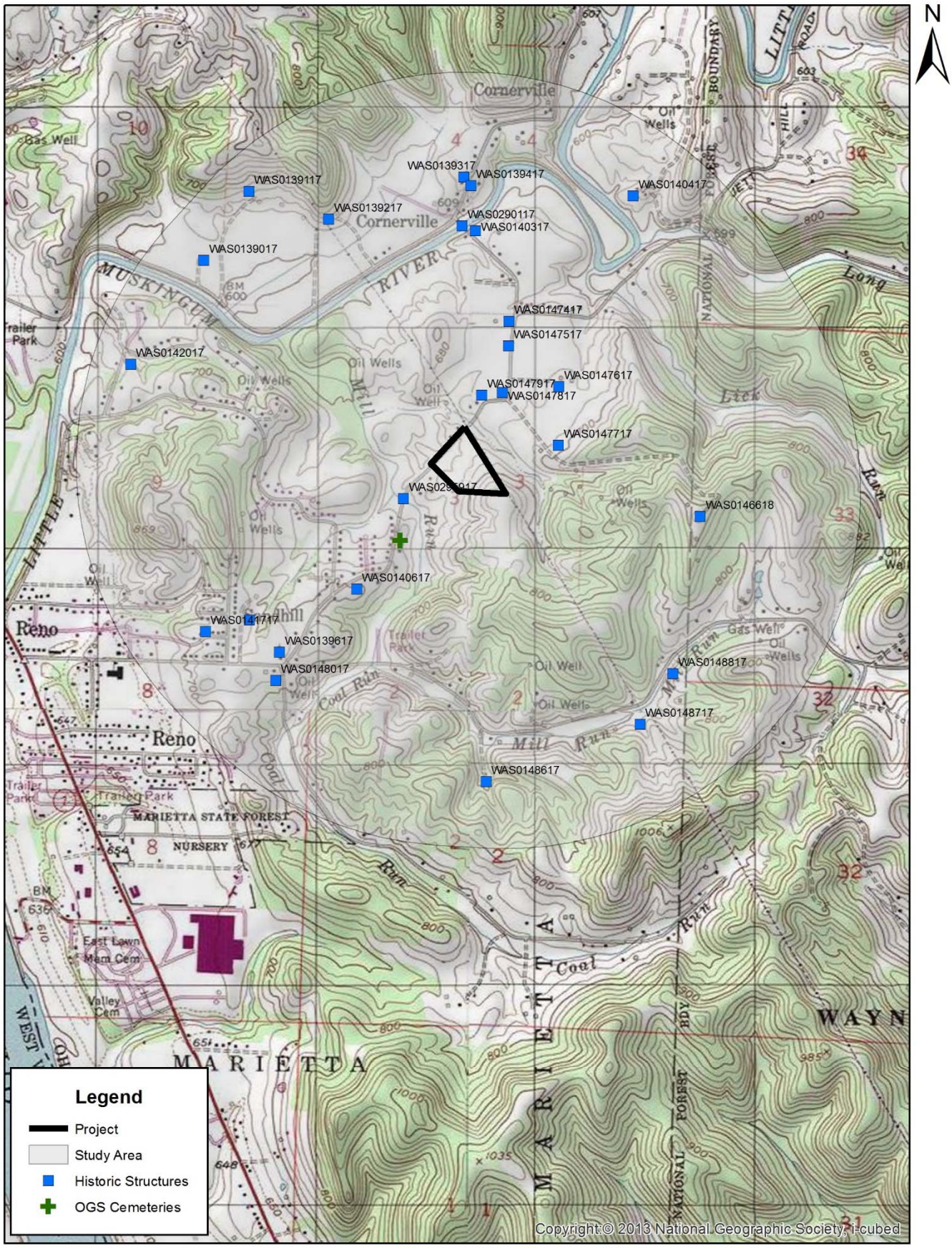

Figure 2. Portion of the USGS *1992 Marietta, Ohio 7.5 Minute Series (Topographic)* map indicating the location of the project and previously recorded resources in the study area.

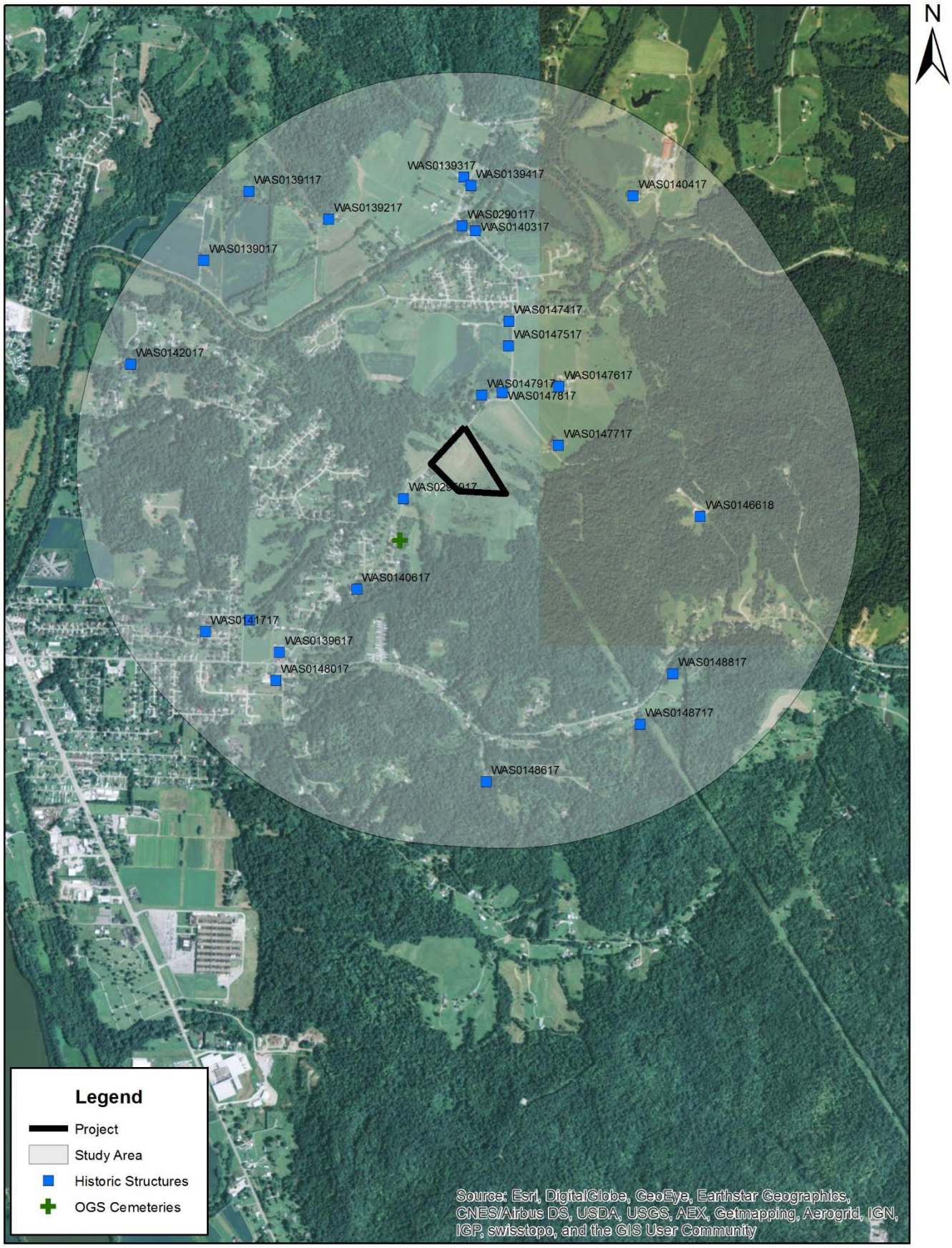

Figure 3. Aerial map indicating the location of the project and previously recorded resources in the study area.

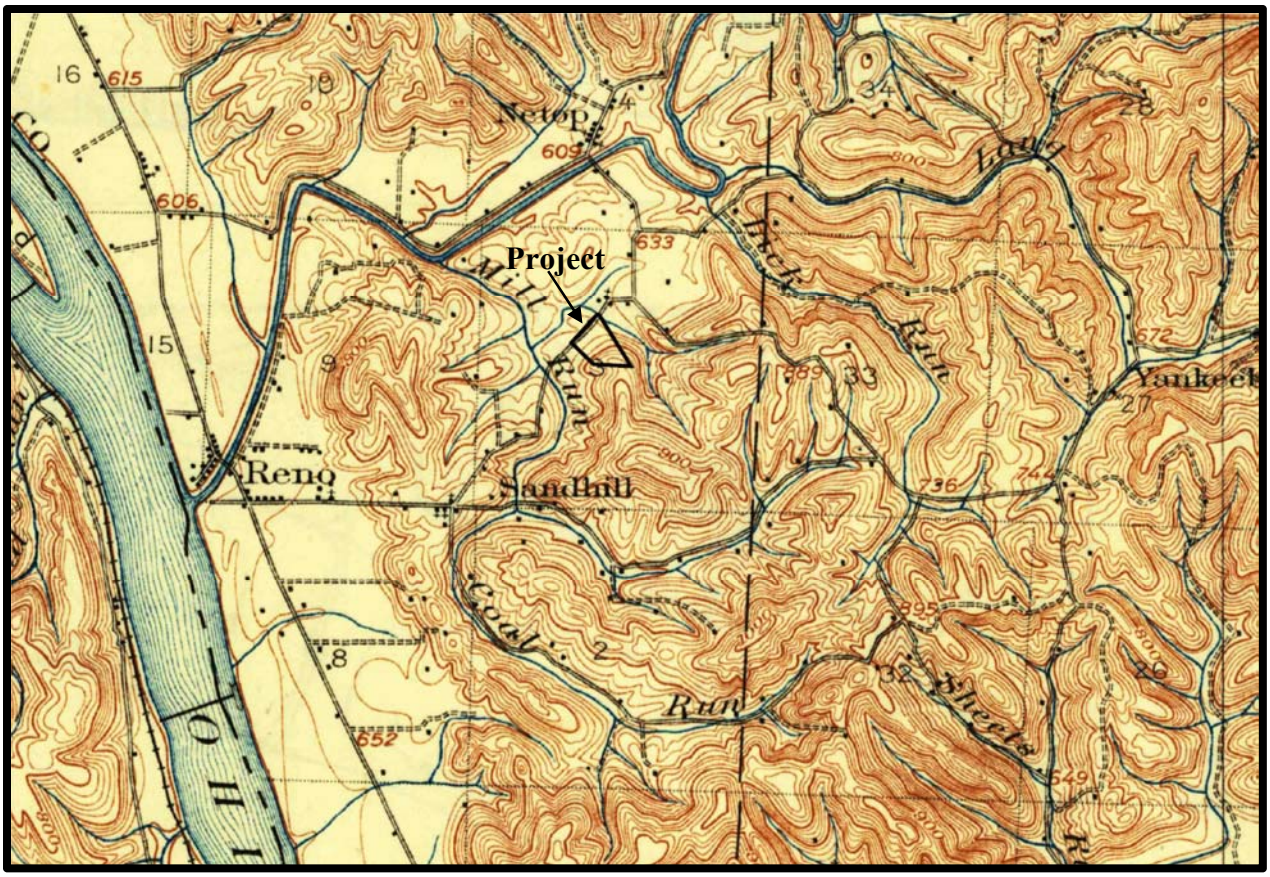

Figure 4. Portion of the USGS *1927 Marietta, Ohio 15 Minute Series (Topographic)* map indicating the location of the project.

Figure 5. Aerial fieldwork map of the project indicating the results of testing and photo orientations.

Figure 6. View of the project showing slope, looking southeast.

Figure 7. View of the project showing pasture, looking southwest.

Figure 8. View of the project showing oil rig, looking northeast.

Figure 9. View of the project showing oil well, looking north.

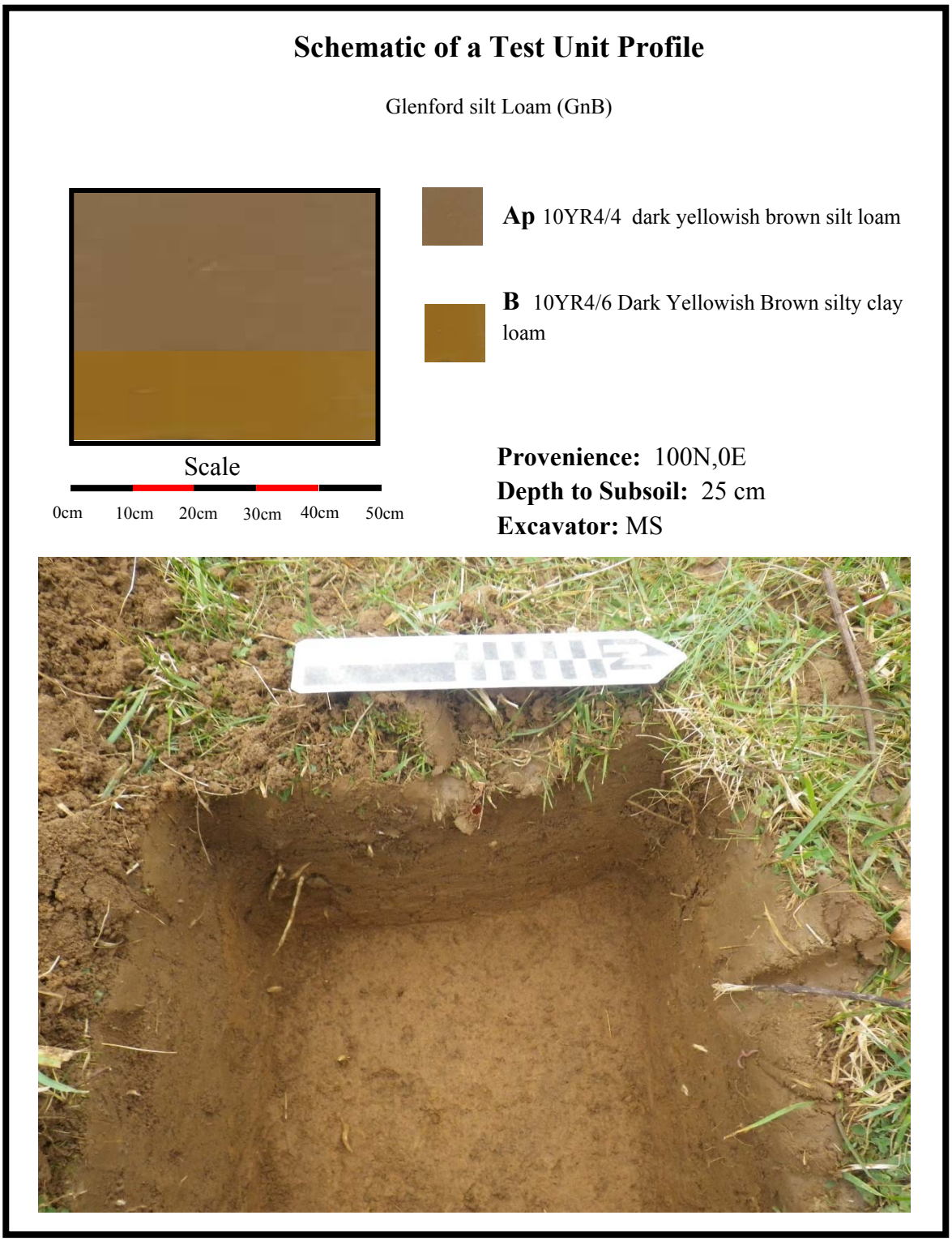

Figure 10. A typical shovel test unit excavated within the project.

Appendix C Ecological Resources Inventory Report

Willow Island – Mill Creek 138 kV Transmission Line Extension Project, Washington County, Ohio

Ecological Resources Inventory Report

Prepared for:

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April 26, 2017

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1.0 Introduction

AEP Ohio Transmission Company, Inc. (AEP) is proposing to extend the existing Willow Island – Mill Creek 138 kV electric transmission line to the proposed Levee Station facility in Washington County, Ohio (Figure 1, Appendix A). The proposed Project area is located on Cornerville Road just southwest of Swartz Road. The study area for the proposed Project (the Project area), as shown on Figure 1 (Appendix A), is approximately 3.71 acres in size. The Project area was surveyed for wetlands, waterbodies, and potential threatened, endangered, and rare species habitat by Stantec Consulting Services Inc. (Stantec) biologists on January 28, 2016. The approximate locations of features located up to 50 feet outside of the Project area were also recorded during the field surveys, where landowner access was permitted. However, no data forms were collected on features that did not extend into the Project area. These features are shown on the Figure 2 maps in Appendix A as "approximate" wetlands, streams (waterways), and upland drainage features.

2.0 Methods

2.1 WETLAND DELINEATION

Prior to completing the field surveys, a desktop review of the Project area was conducted using U.S. Geological Survey (USGS) topographic mapping, National Wetlands Inventory (NWI) maps, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil surveys, and aerial imagery mapping. Stantec completed a wetland delineation study in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (Version 2.0) (USACE 2012). Wetland categories were classified using the Ohio Rapid Assessment Method (ORAM) for Wetlands Version 5.0 (Mack 2001).

2.2 STREAM DELINEATION

Streams that demonstrated a continuously defined channel (bed and bank), ordinary high water mark (OHWM), and the disturbance of terrestrial vegetation were delineated within the Project area, per the protocols outlined in the USACE's Guidance on Ordinary High Water Mark Identification (Regulatory Guidance Letter, No. 05-05) (USACE 2005). Delineated streams were classified as ephemeral, intermittent, or perennial per definitions in the Federal Register/Vol. 67, No. 10 (USACE 2002). Functional assessment of streams within the Project area was based on completion of the Ohio Environmental Protection Agency's (OEPA) Headwater Habitat Evaluation Index (HHEI; OEPA 2012) and/or Qualitative Habitat Evaluation Index (QHEI; OEPA 2006). The centerline and/or OHWM locations of each waterway were identified and surveyed using a handheld sub-meter accuracy GPS unit and mapped with GIS software. Additionally, the locations of ponds/open water features and upland drainage features (which lacked a continuously defined bed and bank/OHWM) identified within the Project area were also recorded with a sub-meter accuracy GPS unit during the field surveys.

2.3 RARE SPECIES

Prior to conducting the field surveys, Stantec contacted the Ohio Department of Natural Resources (ODNR) and the U.S. Fish and Wildlife Service (USFWS) for information regarding rare, threatened, or endangered species and their habitats of concern within the vicinity of the Project area (Appendix B – Agency Correspondence). To assess potential impacts to rare, threatened, or endangered species, Stantec scientists conducted a pedestrian reconnaissance of the proposed Project area, collected information on existing habitats within the Project area, and assessed the potential for these habitats to be used by these species.

3.0 Results

3.1 TERRESTRIAL HABITAT

Stantec completed field surveys within the Project area on January 28, 2016, for threatened and endangered species or their habitats. Figure 3 (Appendix A) shows the vegetation communities/habitats and locations of any identified rare, threatened or endangered species habitat observed within the Project area during the rare, threatened, and endangered species habitat assessment surveys. Representative photographs of the vegetation communities/ habitats identified within the Project area are included in Appendix C of this report (photo locations are shown on Figure 2, Appendix A). Information regarding the vegetation communities/habitats identified within the Project area is provided in Table 1.

Table 1. Vegetation Communities and Land Cover Found within the Willow Island – Mill Creek 138 kV Transmission Line Extension Project Area, Washington County, Ohio

Vegetation Communities and Land Cover Types within the Project Area	Degree of Human-Related Ecological Disturbance	Unique, Rare, or High Quality?	Approximate Acreage Within Project Area
Riparian Forest	Intermediate disturbance (dominated by plants that typify a stable phase of a native community that persists under some disturbance). Habitat dominated by American elm (*Ulmus americana*), American sycamore (*Platanus occidentalis*), Canada wild rye (*Elymus canadensis*), Amur honeysuckle (*Lonicera maackii*), and henbit deadnettle (*Lamium amplexicaule*).	No	0.43
Pasture	Intermediate disturbance/upland pasture area disturbed by regular cattle grazing and mowing for hay. Upland grasses dominate the area such as tall fescue (*Schedonorus arundinacea*) and Canada wild rye.	No	3.28
		Total	**3.71**

3.2 WETLANDS

Stantec completed field surveys within the Project area on January 28, 2016, for wetlands. No wetlands were observed within the Project area.

3.3 STREAMS

Stantec completed field surveys within the Project area on January 28, 2016, for waterbodies (streams). No streams were observed within the Project area.

3.4 RARE, THREATENED, OR ENDANGERED SPECIES HABITAT

Table 2. Summary of Potential Ohio State-Listed Species within the Willow Island – Mill Creek 138 kV Transmission Line Extension Project Area, Washington County, Ohio

Common Name	Scientific Name	State Status	Known to Occur in Washington County?[1]	Known Within One Mile of Project Area?[2]	Habitat Preference	Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Amphibians								
Eastern Spadefoot	*Scaphiopus holbrookii*	Endangered	Yes	Yes	Eastern spadefoots occur in areas of sandy, gravelly, or soft, light soils in wooded or unwooded terrain. In Ohio, this species is found only in areas of sandy soils that are associated with river valleys in the southeastern portion of the State. Breeding habitats are located within these areas and may include flooded agricultural fields or other water-holding depressions (NatureServe 2016; ODNR 2016b).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, the habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.
Eastern Hellbender	*Cryptobranchus alleganiensis alleganiensis*	Endangered	Yes	No	Rocky, clear creeks and rivers, usually where there are large shelter rocks. This species prefers cool waters with temperatures usually lower than 20 degrees Celsius. High amounts of instream cover are needed for reproduction. Nests are located beneath large flat rocks or submerged logs (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size to provide suitable habitat, this project is not likely to impact this species.
Fish								
Western Banded Killifish	*Fundulus diaphanus menona*	Endangered	Yes	No	Western banded killifish are found in areas with an abundance of rooted aquatic vegetation, clear waters, and with substrates of clean sand or organic debris free of silt. They were historically found in natural glacial lakes and slow moving streams in the northern part of the state and in the bays and marshes along the Lake Erie shoreline (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.
Ohio Lamprey	*Ichthyomyzon bdellium*	Endangered	Yes	No	Adults inhabit medium to large rivers; larvae burrow near debris in the mud bottom of quiet pools of creeks and small rivers. Eggs are laid in nests in gravel-bottomed riffles in small gravelly tributaries (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.
Blue Sucker	*Cycleptus elongatus*	Threatened	Yes	No	Habitat includes the largest rivers and lower portions of major tributaries. Usually occurs in channels and flowing pools with moderate current (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.

Common Name	Scientific Name	State Status	Known to Occur in Washington County?[1]	Known Within One Mile of Project Area?[2]	Habitat Preference	Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Tippecanoe Darter	*Etheostoma tippecanoe*	Threatened	Yes	No	Habitat includes shallow gravel riffles of small to medium-sized rivers with moderate gradient and warm, usually clear water, with moderate and swift runs and long shallow gravel/sand riffles (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.
Mountain Madtom	*Noturus eleutherus*	Threatened	Yes	No	This species inhabits small to large rivers, in fast flowing, clear water sections over sand, gravel, and rubble, often near vegetation. Typically found under rocks, in crevices, or under other cover by day (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.
Channel Darter	*Percina copelandi*	Threatened	Yes	No	Habitat includes warm, low and moderate gradient rivers and large creeks in areas of moderate current. This darter usually is found over sand and gravel substrates. It prefers clear water and silt-free bottoms (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.
Northern Madtom	*Noturus stigmosus*	Endangered	Yes	No	Typical habitat includes large creeks and small rivers with clear to turbid water and moderate current. This species avoids extremely silty situations. It occurs in areas with little cover other than tree limbs and debris (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.
Paddlefish	*Polyodon spathula*	Threatened	Yes	No	Habitat includes slow-flowing water of large and medium-sized rivers, river-margin lakes, channels, oxbows, backwaters, impoundments with access to spawning areas. This species prefers depths greater than 1.5 m. It seeks deeper water in late fall and winter. Paddlefish are most often found in areas downstream from submerged sandbars. Spawning occurs in fast shallow water over gravel bars, including significant tailwater sections below upstream impoundments (NatureServe 2016).	No	No impacts to this species are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.
River Darter	*Percina shumardi*	Threatened	Yes	No	Large rivers and lower portions of tributaries. Deep chutes and riffles where current is swift and bottom consists of coarse gravel or rock (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.

Common Name	Scientific Name	State Status	Known to Occur in Washington County?[1]	Known Within One Mile of Project Area?[2]	Habitat Preference	Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Eastern Sand Darter	*Ammocrypta pellucida*	Species of Concern	Yes	Yes	This species prefers sandy areas of medium to large rivers with sufficient flow to remove any siltation. Typically, this species is associated with areas lacking vegetation (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	ODNR recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact this species.
Mussels								
Fanshell	*Cyprogenia stegaria*	Endangered	Yes	No	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depths ranging from shallow to deep (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Butterfly	*Ellipsaria lineolata*	Endangered	Yes	No	This species prefers stable substrates containing rock, gravel and sand in swift currents of large rivers (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Elephant-ear	*Elliptio crassidens crassidens*	Endangered	Yes	No	An inhabitant of channels in large creeks to rivers with moderate to swift currents, primarily on sand and limestone or rock substrates (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Purple Cat's Paw	*Epioblasma obliquata obliquata*	Endangered	Yes	No	Inhabits medium to large rivers in riffles, shoals, and/or deep water in swift current (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	No comments received.
Northern Riffleshell	*Epioblasma torulosa rangiana*	Endangered	Yes	No	This species inhabits riffles in small to large streams with swift current and a substrate of firmly packed fine gravel and sand (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	No comments received.
Snuffbox	*Epioblasma triquetra*	Endangered	Yes	No	Occurs in medium-sized streams to large rivers generally, on mud, rocky, gravel, or sand substrates in flowing water. Often deeply buried in substrate and overlooked by collectors (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Pink Mucket	*Lampsilis abrupta*	Endangered	Yes	No	Large rivers in habitats ranging from silt to boulders, but apparently more commonly from gravel and cobble. Collected from shallow and deep water with current velocity ranging from zero to swift, but never standing pools of water (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Ebonyshell	*Fusconaia ebena*	Endangered	Yes	No	This species inhabits large rivers and prefers swift water and stable sandy or gravely shoals, although this species thrives in rivers with substrates composed of sand, silt, and mud (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	No comments received.

Common Name	Scientific Name	State Status	Known to Occur in Washington County?[1]	Known Within One Mile of Project Area?[2]	Habitat Preference	Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Long-solid	*Fusconaia maculata maculata*	Endangered	Yes	No	This species is found in the gravel substrates of shoals and riffles of large rivers, as well as impounded areas (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Sharp-ridged Pocketbook	*Lampsilis ovata*	Endangered	Yes	No	Very generalized in habitat preference, adapting well to both impoundment situations as well as free-flowing, shallow rivers. Usually found in moderate to strong current, it can survive in standing water. The most suitable substrate consists of a mixture of gravel and coarse sand mixed with some silt or mud (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Yellow Sandshell	*Lampsilis teres*	Endangered	Yes	No	Occurs in medium-sized creeks to large rivers, often in slower current areas of stream borders having sand as the primary substrate, as well as mud, gravel, and silt (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	No comments received.
Washboard	*Megalonaias nervosa*	Endangered	Yes	No	This species is typically a large river species, living in the main channel and in some of the overbank areas of reservoirs, but in some instances it may also become established in medium-sized and even small rivers. It is found in areas with a slow current with muddy to coarse gravel substrates (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Sheepnose	*Plethobasus cyphyus*	Endangered	Yes	No	Although it does inhabit medium-sized rivers, this species generally has been considered a large-river species. It may be associated with riffles and gravel/cobble substrates but usually has been reported from deep water with slight to swift currents and mud, sand, or gravel bottoms. It also appears capable of surviving in reservoirs. Specimens in larger rivers may occur in deep runs (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Clubshell	*Pleurobema clava*	Endangered	Yes	No	This is a species of small to medium-sized rivers and streams. It is generally found in clean, coarse sand and gravel in runs, often just downstream of a riffle, and cannot tolerate mud or slackwater conditions (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	No comments received.
Ohio Pigtoe	*Pleurobema cordatum*	Endangered	Yes	No	This species prefers strong currents of large rivers with substrates of sand and gravel, though it is somewhat tolerant of lentic systems (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.

Common Name	Scientific Name	State Status	Known to Occur in Washington County?[1]	Known Within One Mile of Project Area?[2]	Habitat Preference	Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
Pyramid Pigtoe	*Pleurobema rubrum*	Endangered	Yes	No	This mussel is a riffle and shoal species that prefers the swift currents of coarse gravel, sand, and mud substrates within medium to large rivers (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Rabbitsfoot	*Quadrula cylindrica cylindrica*	Endangered	Yes	No	The typical habitat for this species is small to medium rivers with moderate to swift currents, and in smaller streams where it inhabits bars or gravel and cobble close to the fast current. Found in medium to large rivers in sand and gravel shoals (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	No comments received.
Monkeyface	*Quadrula metanevra*	Endangered	Yes	No	This is a species of medium to large rivers and is typically found in runs with a substrate of mixed sand or gravel (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Black Sandshell	*Ligumia recta*	Threatened	Yes	No	Typically found in medium-sized to large rivers in locations with strong current and substrates of coarse sand and gravel with cobble in water depths from several inches to six feet or more (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Threehorn Wartyback	*Obliquaria reflexa*	Threatened	Yes	No	This species is typical of large rivers where there is moderately strong current and a stable substrate composed of gravel, sand, and mud (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Fawnsfoot	*Truncilla donaciformis*	Threatened	Yes	No	This species occurs in both large and medium-sized rivers with substrates of either sand or mud being suitable. Although it is typically found in moderate current, it can adapt to a lake or embayment environment lacking current (NatureServe 2016).	No	No impacts are anticipated due to the lack of suitable habitat within the Project area.	Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact this species.
Mammals								
Indiana Bat	*Myotis sodalis*	Endangered	Yes	No	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as	No	No potential roost trees or hibernacula were observed within the Project area and no tree clearing is proposed by AEP for this project. Therefore, no impacts to this species are anticipated.	If suitable habitat occurs within the project area and trees must be cut, the ODNR recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the ODNR recommends a net survey be conducted between June 1 and August 15, prior to any cutting.

Common Name	Scientific Name	State Status	Known to Occur in Washington County?[1]	Known Within One Mile of Project Area?[2]	Habitat Preference	Habitat Observed in Project Area?	Impact Assessment	ODNR Comments/Recommendations
					maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2015b). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Indiana bats primarily use caves for hibernacula, although they are also known to hibernate in abandoned underground mines (Brack et al. 2010).			
Black Bear	*Ursus americanus*	Endangered	Yes	No	Occurs within a wide variety of heavily wooded habitats, ranging from swamps and wetlands to dry upland hardwood and coniferous forests. Although they will utilize open areas, black bears prefer wooded cover with a dense understory (NatureServe 2016).	Yes	Potential foraging habitat is present within the Project area. Due to the mobility of this species, the construction activities will not negatively impact the species.	Due to the mobility of this species, this project is not likely to impact this species.
Reptiles								
Timber Rattlesnake	*Crotalus horridus*	Endangered	Yes	No	In the central Midwest, optimum habitat is a high, dry ridge with oak-hickory forest interspersed with open areas. Hibernacula are typically located in a rocky area where underground crevices provide retreats for overwintering, such as a fissure in a ledge, a crevice between ledge and ground, and fallen rock associated or unassociated with cliffs (NatureServe 2016). According to the ODNR (Appendix B), the timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering.	No	No impacts are anticipated due to the lack of typical timber rattlesnake habitat within the Project area.	Due to the location, the type of habitat present at the project site, and the type of work proposed, this project is not likely to impact this species.
Insects								
Regal Fritillary	*Speyeria idalia*	Endangered	Yes	No	This species prefers open grassland, savannah, and old field habitats, all with varying degrees of hydrology. Heavily treed areas are not utilized due to the impediment of movement and migration (NatureServe 2016).	Yes	Impacts to this species are possible though not likely. The majority of the Project area consists of active cattle pasture. Cattle maintain the grasses to a short height, thus limiting the amount of habitat for this species.	No comments received.

[1]According to Ohio Department of Natural Resources, State Listed Wildlife Species by County (ODNR 2016a).
[2]According to Ohio Natural Heritage Program (Appendix B).

Table 3. Summary of Potential Federally-Listed Species within the Willow Island – Mill Creek 138 kV Transmission Line Extension Project Area, Washington County, Ohio

Common Name	Scientific Name	Federal Status	Known to Occur in Washington County?[1]	Habitat Preference	Habitat Observed in Project Area?	Impact Assessment	USFWS Comments/ Recommendations
Mammals							
Indiana Bat	*Myotis sodalis*	Endangered	Yes	The Indiana bat is likely distributed over the entire State of Ohio, though not uniformly. This species generally forages in openings and edge habitats within upland and floodplain forest, but they also forage over old fields and pastures (Brack et al. 2010). Natural roost structures include trees (live or dead) with exfoliating bark, and exposure to solar radiation. Other important factors for roost trees include relative location to other trees, a permanent water source and foraging areas; Dead trees are preferred as maternity roosts; however, live trees are often used as secondary roosts depending on microclimate conditions (USFWS 2007; USFWS 2015b). Roosts have also occasionally been found to consist of cracks and hollows in trees, utility poles, buildings, and bat boxes. Indiana bats primarily use caves for hibernacula, although are also known to hibernate in abandoned underground mines (Brack et al. 2010).	No	No potential roost trees or hibernacula were observed within the Project area and no tree clearing is proposed by AEP for this project. Therefore, no adverse effects to this species are anticipated.	Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats, the USFWS does not anticipate adverse effects to this species.
Northern Long-eared Bat	*Myotis septentrionalis*	Threatened	Yes	The northern long-eared bat is found throughout Ohio. This species generally forages in forested habitat and openings in forested habitat and utilizes cracks, cavities, and loose bark within live and dead trees, as well as buildings as roosting habitat (Brack et al. 2010; USFWS 2016). The species utilizes caves and abandoned mines as winter hibernacula. Various sized caves are used providing they have a constant temperature, high humidity, and little to no air current (Brack et al. 2010).	No	No potential roost trees or hibernacula were observed within the Project area and no tree clearing is proposed by AEP for this project. Therefore, no impacts to this species are anticipated.	Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to northern long-eared bats, the USFWS does not anticipate adverse effects to this species.
Mussels							
Fanshell	*Cyprogenia stegaria*	Endangered	Yes	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (NatureServe 2016).	No	No impacts or adverse effects are anticipated due to the lack of suitable habitat within the Project area.	No adverse effects to this species are anticipated.

Common Name	Scientific Name	Federal Status	Known to Occur in Washington County?[1]	Habitat Preference	Habitat Observed in Project Area?	Impact Assessment	USFWS Comments/ Recommendations
Pink Mucket Pearlymussel	*Lampsilis abrupta*	Endangered	Yes	Large rivers in habitats ranging from silt to boulders, but apparently more commonly from gravel and cobble. Collected from shallow and deep water with current velocity ranging from zero to swift, but never standing pools of water (NatureServe 2016).	No	No impacts or adverse effects are anticipated due to the lack of suitable habitat within the Project area.	No adverse effects to this species are anticipated.
Sheepnose	*Plethobasus cyphus*	Endangered	Yes	Although it does inhabit medium-sized rivers, this species generally has been considered a large-river species. It may be associated with riffles and gravel/cobble substrates but usually has been reported from deep water with slight to swift currents and mud, sand, or gravel bottoms. It also appears capable of surviving in reservoirs. Specimens in larger rivers may occur in deep runs (NatureServe 2016).	No	No impacts or adverse effects are anticipated due to the lack of suitable habitat within the Project area.	No adverse effects to this species are anticipated.
Snuffbox	*Epioblasma triquetra*	Endangered	Yes	Occurs in medium-sized streams to large rivers generally on mud, rocky, gravel, or sand substrates in flowing water. Often deeply buried in substrate and overlooked by collectors (NatureServe 2016).	No	No impacts or adverse effects are anticipated due to the lack of suitable habitat within the Project area.	No adverse effects to this species are anticipated.

[1] According to USFWS (2015a).

4.0 Conclusions and Recommendations

Stantec conducted a wetland and waterbodies delineation and a preliminary habitat assessment for threatened and endangered species or their habitats within the Project area on January 28, 2016. During the field surveys, no wetlands or waterbodies were identified within the Project area.

The Project area includes potentially suitable habitat for the black bear and the regal fritillary. However, no occurrences of the black bear or the regal fritillary are known from the Project area or a one-mile radius of it, according to correspondence received from the ODNR (Appendix B). Additionally, due to the mobility of the black bear and frequent cattle disturbances, this project is not likely to impact either of these species. No occurrences or sign of these species were encountered during the field survey.

The Project area does not contain potential roost trees or hibernacula for the Indiana bat or the northern long-eared bat and no tree clearing is proposed by AEP for this project. Additionally, the ODNR (Appendix B) has no records of these species within the Project area or a one-mile radius of it. The ODNR recommended clearing potentially suitable Indiana bat roost trees between October 1 and March 31, to avoid potential adverse effects to this species. If suitable roost trees for the Indiana bat must be cut during the summer months, the ODNR recommended a bat mist net survey be conducted between June 1 and August 15, prior to any tree cutting (Appendix B).

A request for environmental review letter was submitted to the ODNR – Office of Real Estate. The ODNR response letter (Appendix B) stated that due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact the state-listed endangered eastern hellbender or state-listed threatened and endangered species of fish and mussels. The ODNR also stated that the project is not likely to impact the eastern spadefoot toad or timber rattlesnake due to the location, habitat at the Project site and within the vicinity of the Project area, and the type of work proposed. The ODNR is also unaware of any unique ecological sites, geological features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forests, national wildlife refuges, or other protected natural areas within the Project area or a one-mile radius of it (Appendix B).

A technical assistance letter was submitted to the USFWS. The USFWS response letter (Appendix B) indicated that, due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats and northern long-eared bats, they do not anticipate adverse effects to any federally endangered, threatened, proposed or candidate species.

Additionally, the USFWS indicated that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project area (Appendix B). The USFWS recommended that impacts to wetlands and other water resources be avoided or minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

5.0 References

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Appendix A Figures

A.1 FIGURE 1 – PROJECT LOCATION MAP

Figure No.
1

Title
Project Location Map

Client/Project
AEP Ohio Transmission Company, Inc.
Willow Island - Mill Creek 138 kV
Transmission Line Extension Project

Project Location
T2N, R8W, S3
Washington Co., OH

193704206
Prepared by JLH on 2017-04-07
Technical Review by CP on 2017-04-07
Independent Review by DG on 2017-04-07

0 500 1,000 Feet

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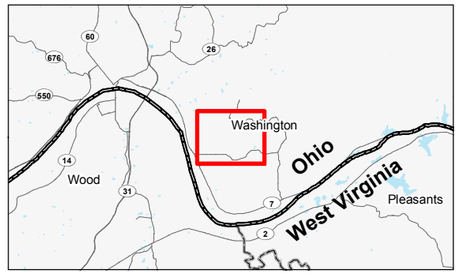
N

Legend

- Proposed 138kV Transmission Line Extension
- Project Area
- Proposed Levee Station Facility



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, NADS
3. Background: USGS 7.5' Topographic Quadrangles - Belmont (OH, 1979), Mariette (OH, 1978), Valley Mills (WV, 1975), and Willow Island (WV, 1979)

Stantec

A.2 FIGURE 2 – WETLAND AND WATERBODY DELINEATION MAP

Figure No.
2

Title
Wetland and Waterbody Delineation Map

Client/Project
AEP Ohio Transmission Company, Inc.
Willow Island - Mill Creek 138 kV
Transmission Line Extension Project

Project Location
T2N, R8W, S3
Washington Co., OH

193704206

Prepared by JLH on 2017-04-07
Technical Review by CP on 2017-04-07
Independent Review by DG on 2017-04-07

0 100 200 Feet

1:2,400 (At original document size of 11x17)

N

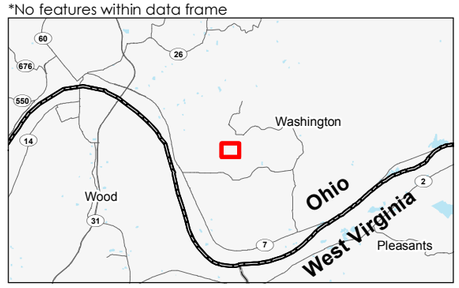
Legend

- Project Area
- Proposed Levee Station Facility
- Proposed 138kV Transmission Line Extension
- Existing 138kV Transmission Line
- Photo Location
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Approximate Wetland
- Property Boundary
- National Wetlands Inventory Feature*
- 100-year Flood Zone*

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream

*No features within data frame



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, Washington Co., USFWS, NADS, OGRIP
3. Orthophotography: 2015 NAIP

Stantec

A.3 FIGURE 3 – HABITAT ASSESSMENT MAP

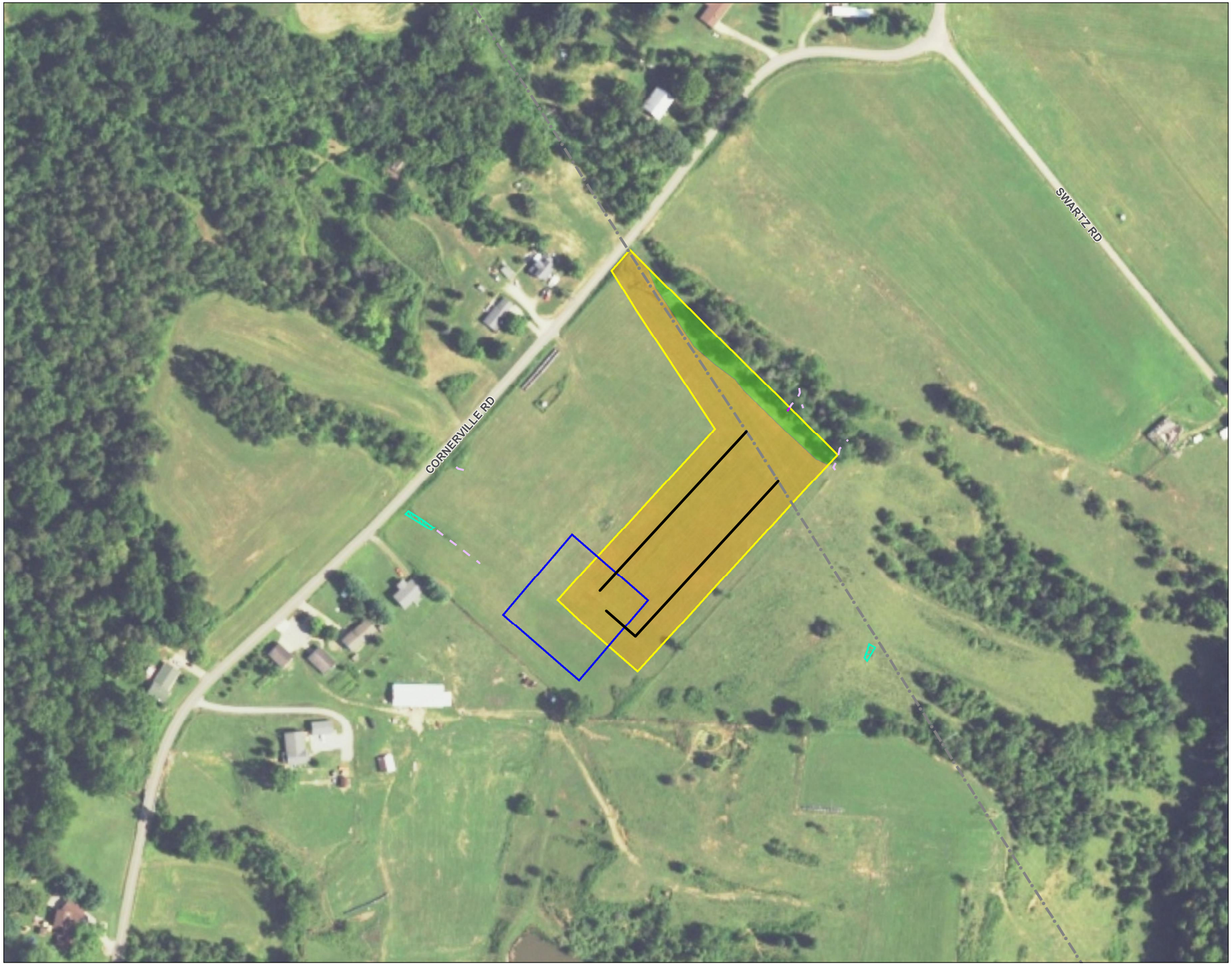
Figure No.
3

Title
Habitat Assessment Map

Client/Project
AEP Ohio Transmission Company, Inc.
Willow Island - Mill Creek 138 kV
Transmission Line Extension Project

Project Location
T2N, R8W, S3
Washington Co., OH

193704206
Prepared by JLH on 2017-04-07
Technical Review by CP on 2017-04-07
Independent Review by DG on 2017-04-07



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N

Legend

- Project Area
- Proposed Levee Station Facility
- Proposed 138kV Transmission Line Extension
- Existing 138kV Transmission Line
- Upland Drainage Feature
- Approximate Upland Drainage Feature
- Approximate Wetland

Habitat Type

- Pasture
- Riparian Forest

*No parks, wildlife management areas or nature preserves were identified within the Project Area or its vicinity. (Sources: ODNR, USFS, USFWS, The Nature Conservancy, PADUS)

Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources Include: Stantec, AEP, USGS, NADS, OGRIP
3. Orthophotography: 2015 NAIP

Stantec

Appendix B Agency Correspondence

Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

Ohio Division of Wildlife
Raymond W. Petering, Chief
2045 Morse Rd., Bldg. G
Columbus, OH 43229-6693
Phone: (614) 265-6300

February 3, 2016

Jesse Binau
Stantec Consulting, Inc.
11687 Lebanon Rd.
Cincinnati, OH 45241

Dear Mr. Binau,

I have reviewed the Natural Heritage Database for the Levee Station Line Extension project area, including a one mile radius, in Marietta Township, Washington County, Ohio. The numbers/letters on the list below correspond to the areas marked on the accompanying map. Common name, scientific name and status are given for each species.

A. Marietta State Nursery – ODNR Division of Forestry
1. *Ammocrypta pellucida* – Eastern Sand Darter, species of concern
2. *Scaphiopus holbrookii* – Eastern Spadefoot, endangered

We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves or parks or national wildlife refuges, parks or forests within a one mile radius of the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

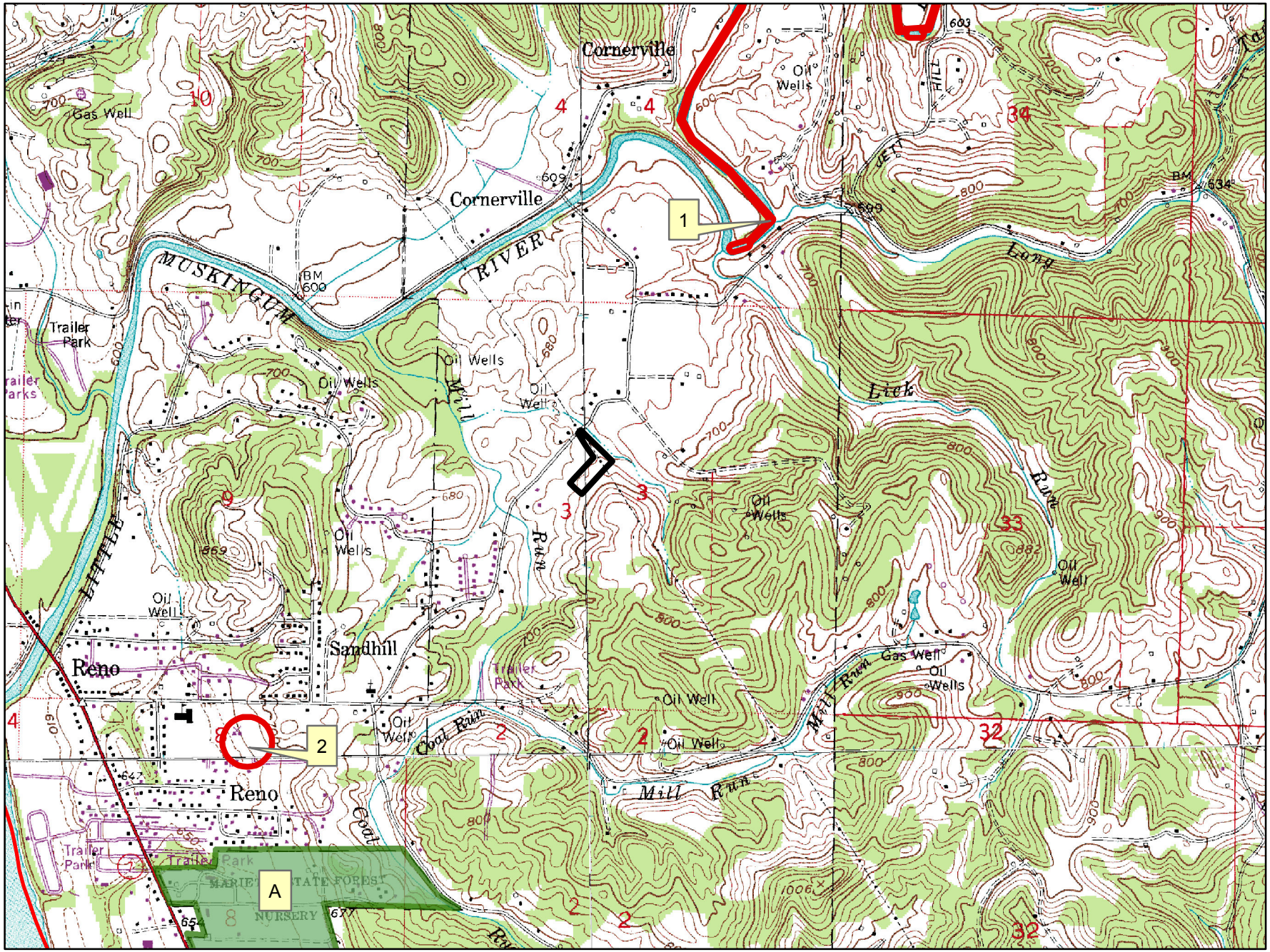
Please contact me at 614-265-6818 if I can be of further assistance.

Sincerely,

Debbie Woischke

Debbie Woischke
Ohio Natural Heritage Program

Levee Station Line Extension Project



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR JAMES ZEHRINGER, DIRECTOR

Office of Real Estate
Paul R. Baldridge, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6649
Fax: (614) 267-4764

March 2, 2016

Jesse Binau
Stantec
11687 Lebanon Road
Cincinnati OH 45241-2012

Re: 16-078; Request for Environmental Review, AEP Line Extension Project (Levee Station)

Project: The proposed project involves the constructing an extension to an existing electric transmission line to energize a new distribution station (Levee Station).

Location: The proposed project is located in Marietta Township, Washington County, Ohio.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Natural Heritage Database: The Natural Heritage Database has the following data at or within a one mile radius of the project area:

Eastern sand darter (*Ammocrypta pellucida*), State species of concern
Eastern spadefoot (*Scaphiopus holbrookii*), State endangered
Marietta State Nursery – ODNR Division of Forestry

We are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, national wildlife refuges, state or national parks or national forests within the project area. The review was performed on the project area you specified in your request as well as an additional one mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity. Additional comments on some of the features may be found in pertinent sections below.

Please note that Ohio has not been completely surveyed and we rely on receiving information from many sources. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although all types of plant communities have been surveyed, we only maintain records on the highest quality areas.

Fish and Wildlife: The Division of Wildlife (DOW) has the following comments.

The DOW recommends that impacts to streams, wetlands and other water resources be avoided and minimized to the fullest extent possible, and that best management practices be utilized to minimize erosion and sedimentation.

The project is within the range of the Indiana bat (*Myotis sodalis*), a state endangered and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees to include: shagbark hickory (*Carya ovata*), shellbark hickory (*Carya laciniosa*), bitternut hickory (*Carya cordiformis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), shingle oak (*Quercus imbricaria*), northern red oak (*Quercus rubra*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), sassafras (*Sassafras albidum*), post oak (*Quercus stellata*), and white oak (*Quercus alba*). Indiana bat roost trees consists of trees that include dead and dying trees with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. However, Indiana bats are also dependent on the forest structure surrounding roost trees. If suitable habitat occurs within the project area, the DOW recommends trees be conserved. If suitable habitat occurs within the project area and trees must be cut, the DOW recommends cutting occur between October 1 and March 31. If suitable trees must be cut during the summer months, the DOW recommends a net survey be conducted between June 1 and August 15, prior to any cutting. Net surveys should incorporate either nine net nights per square 0.5 kilometer of project area, or four net nights per kilometer for linear projects. If no tree removal is proposed, this project is not likely to impact this species.

The project is within the range of the sheepnose (*Plethobasus cyphyus*), a state endangered and federally endangered mussel, the fanshell (*Cyprogenia stegaria*), a state endangered and federally endangered mussel, the pink mucket (*Lampsilis orbiculata*), a state endangered and federally endangered mussel, the snuffbox (*Epioblasma triquetra*), a state endangered and federally endangered mussel, the washboard (*Megalonaias nervosa*), a state endangered mussel, the butterfly (*Ellipsaria lineolata*), a state endangered mussel, the elephant-ear (*Elliptio crassidens*), a state endangered mussel, the long-solid (*Fusconaia maculata maculata*), a state endangered mussel, the sharp-ridged pocketbook (*Lampsilis ovata*), a state endangered mussel, the Ohio pigtoe (*Pleurobema cordatum*), a state endangered mussel, the pyramid pigtoe (*Pleurobema rubrum*), a state endangered mussel, the monkeyface (*Quadrula metanevra*), a state endangered mussel, the black sandshell (*Ligumia recta*), a state threatened mussel, the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, and the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the blue sucker (*Cycleptus elongatus*), a state endangered fish and a Federal species of concern, the western banded killifish (*Fundulus diaphanus menona*), a state endangered fish, the northern madtom (*Noturus stigmosus*), a state endangered fish, the Ohio lamprey (*Ichthyomyzon bdellium*), a state endangered fish, the paddlefish (*Polyodon spathula*) a state threatened fish, the mountain madtom (*Noturus eleutherus*), a state threatened fish, the river darter (*Percina shumardi*), a state threatened fish, the mountain madtom (*Noturus eleutherus*), a state threatened fish, the channel darter (*Percina copelandi*), a state threatened fish, and the Tippecanoe darter (*Etheostoma tippecanoe*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the timber rattlesnake (*Crotalus horridus horridus*), a state endangered species, and a federal species of concern. The timber rattlesnake is a woodland species, utilizing dry slopes and rocky outcrops. In addition to using wooded areas, the timber rattlesnake utilizes sunlit gaps in the canopy for basking and deep rock crevices for overwintering. Due to the location, the type of habitat present at the project site, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), a state endangered species and a federal species of concern. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size to provide suitable habitat, this project is not likely to impact this species.

The project is within the range of the eastern spadefoot toad (*Scaphiopus holbrookii*), a state endangered species. This species is found in areas of sandy soils that are associated with river valleys. Breeding habitats may include flooded agricultural fields or other water holding depressions. Due to the location, the habitat at the project site and within the vicinity of the project area, and the type of work proposed, this project is not likely to impact this species.

The project is within the range of the black bear (*Ursus americanus*), a state endangered species. Due to the mobility of this species, this project is not likely to impact this species.

Due to the potential of impacts to federally listed species, as well as to state listed species, we recommend that this project be coordinated with the U.S. Fish & Wildlife Service.

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments or need additional information.

John Kessler
ODNR Office of Real Estate
2045 Morse Road, Building E-2
Columbus, Ohio 43229-6693
John.Kessler@dnr.state.oh.us

From: susan_zimmermann@fws.gov [mailto:susan_zimmermann@fws.gov] **On Behalf Of** Ohio, FW3
Sent: Thursday, March 03, 2016 8:34 AM
To: Binau, Jesse
Subject: AEP - Levee Station Project and the Levee Line Extension, Washington Co. OH

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service
Ecological Services Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / Fax (614) 416-8994

TAILS# 03E15000-2016-TA-0711

Dear Mr. Binau,

We have received your recent correspondence regarding potential impacts to federally listed species in the vicinity of the above referenced project. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. We recommend that proposed activities minimize water quality impacts, including fill in streams and wetlands. Best management practices should be utilized to minimize erosion and sedimentation.

FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to Indiana bats and northern long-eared bats, we do not anticipate adverse effects to any federally endangered, threatened, proposed or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the U.S. Fish and Wildlife Service (Service) should be initiated to assess any potential impacts.

If there is a federal nexus for the project (e.g., federal funding provided, federal permits required to construct), no tree clearing should occur on any portion of the project area until consultation under section 7 of the Endangered Species Act (ESA), between the Service and the federal action agency, is completed. We recommend that the federal action agency submit a determination of effects to this office, relative to the Indiana bat and northern long-eared bat, for our review and concurrence.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state

listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

If you have questions, or if we can be of further assistance in this matter, please contact our office at (614) 416-8993 or ohio@fws.gov.

Sincerely,

Dan Everson

Field Office Supervisor

Appendix C Representative Photographs

Photograph 1. View of pasture habitat and existing AEP electric transmission line right-of-way (ROW). Photo taken facing east.

Photograph 2. View of pasture habitat and existing AEP electric transmission line ROW. Photo taken facing north.

AEP Ohio Transmission Company, Inc.
Willow Island-Mill Creek 138 kV
Transmission Line Extension Project
Washington County, Ohio
Photographs Taken January 28, 2016

Photograph 3. View of pasture habitat. Photo taken facing south.

Photograph 4. View of pasture habitat. Photo taken facing west.

AEP Ohio Transmission Company, Inc.
Willow Island-Mill Creek 138 kV
Transmission Line Extension Project
Washington County, Ohio
Photographs Taken January 28, 2016

Photograph 5. View of pasture habitat. Photo taken facing east.

Photograph 6. View of pasture habitat and existing AEP electric transmission line ROW. Photo taken facing north.

AEP Ohio Transmission Company, Inc.
Willow Island-Mill Creek 138 kV
Transmission Line Extension Project
Washington County, Ohio
Photographs Taken January 28, 2016

Photograph 7. View of pasture habitat. Photo taken facing south.

Photograph 8. View of pasture habitat. Photo taken facing west.

Photograph 9. View of pasture habitat. Photo taken facing north.

Photograph 10. View of existing oil/gas well within the Project area. Photo taken facing west.

Photograph 11. View of existing oil/gas well separator site within the Project area. Photo taken facing west.

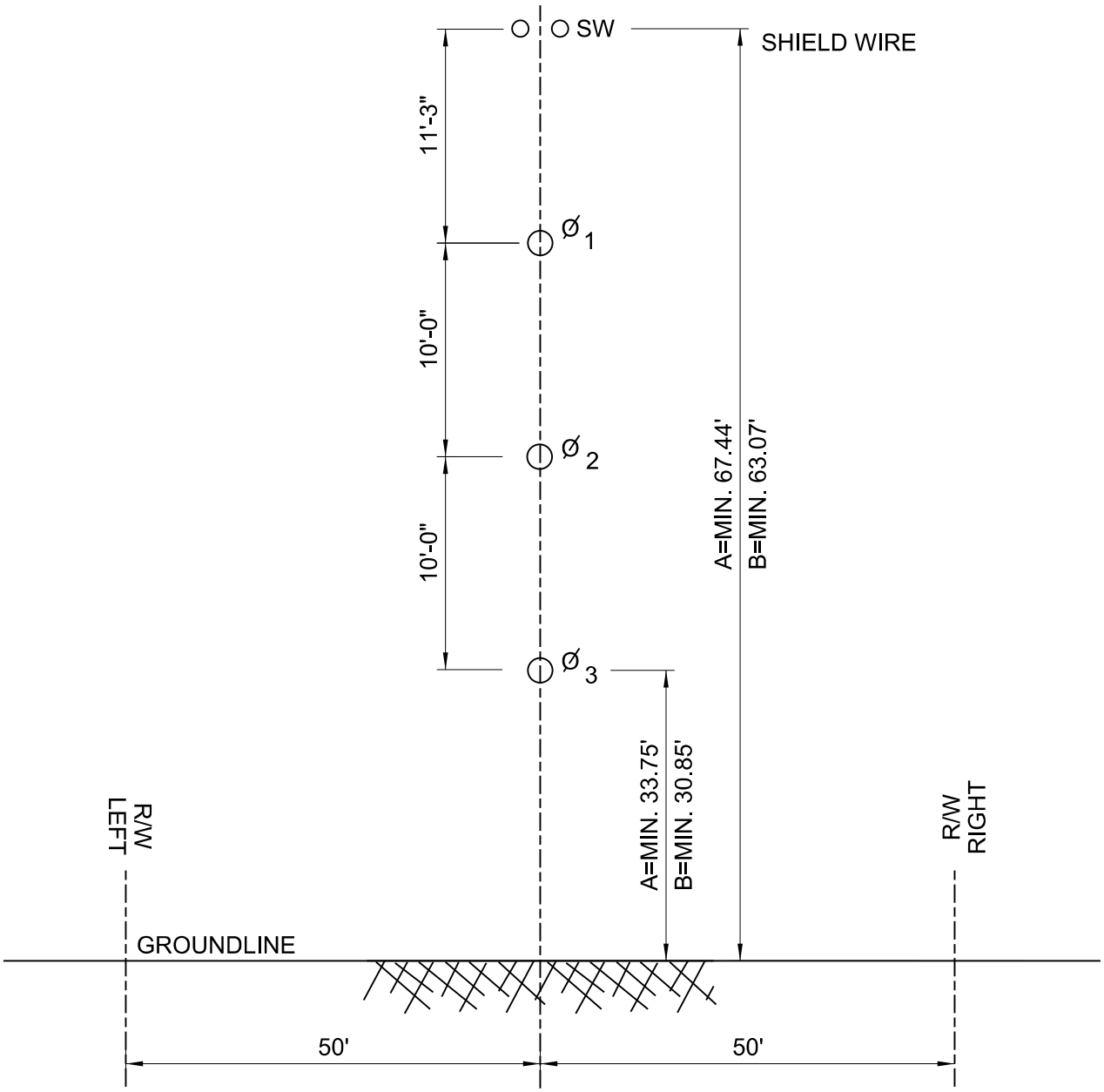
Photograph 12. View of pasture and existing oil/gas well. Photo taken facing east.

Photograph 13. View of pasture habitat. Photo taken facing north.

Photograph 14. View of pasture habitat. Photo taken facing south.

Photograph 15. View of pasture habitat. Photo taken facing west.

Appendix D Structure Diagrams



DIMENSION "A" SINGLE CIRCUIT - VERTICAL CONFIGURATION (STEEL POLE)
(UNDER EVERYDAY CONDITION AEP 0#, 0", 120°F)

DIMENSION "B" SINGLE CIRCUIT - VERTICAL CONFIGURATION (STEEL POLE)
(UNDER MAX OPERATING TEMPERATURE)

(NOT TO SCALE)

REVISIONS	DATE	NO.

AEP AMERICAN® ELECTRIC POWER

LEVEE EXTENSION
138kV LINE

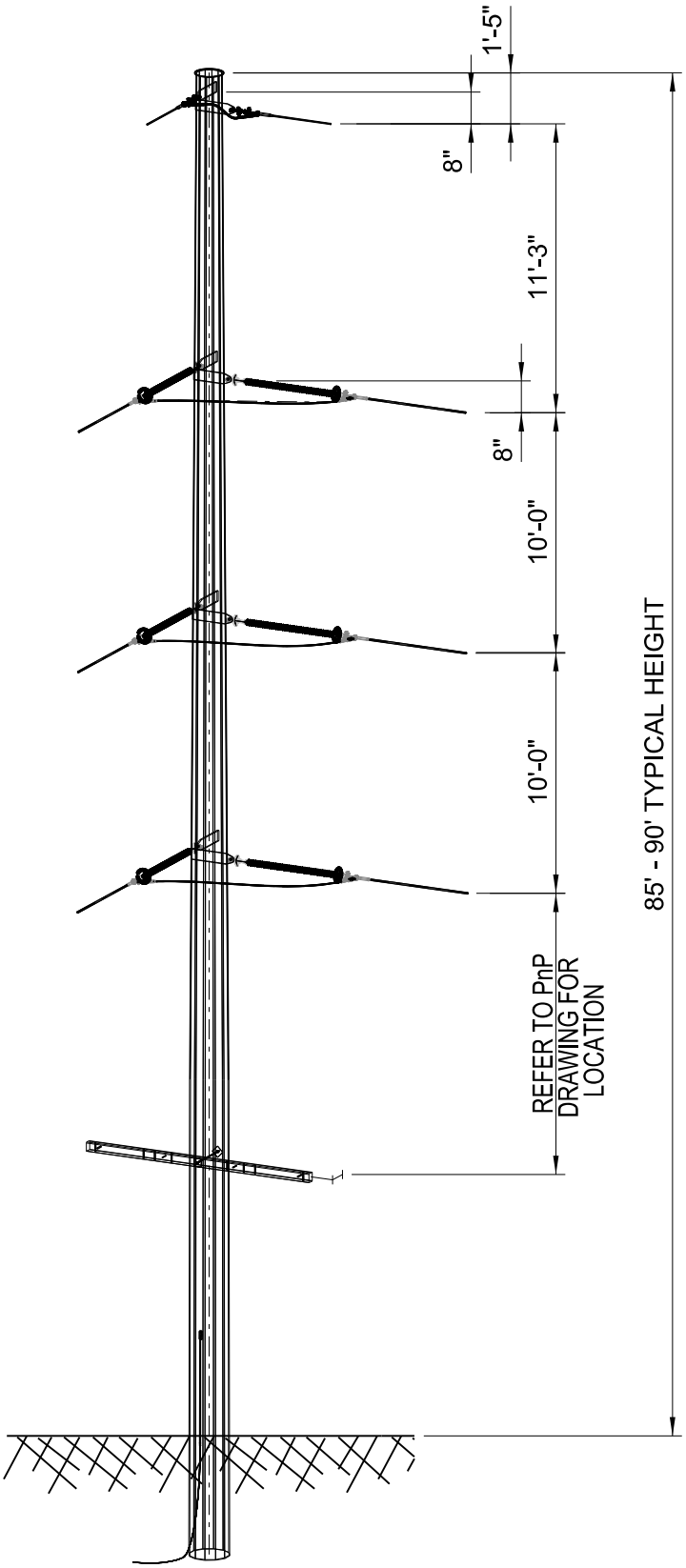
PHASE ARRANGEMENT

DRAWN BY NS
CHECKED BY JM
LINE NUMBER: C-850
APPROVED JM

SH. 1 OF 2

PLOTTED DD-MMM-YYYY AT HH:MM BY PLTUSER TLPE GAHANNA

CADFILEPATH



NOTES:
1. T-LINE ENGINEER TO SELECT THE OPTION OF WELDED VANGS OR BOLTED TEES.

(NOT TO SCALE)

REVISIONS	DATE	NO.

AEP AMERICAN® ELECTRIC POWER

LEVEE EXTENSION
138kV LINE

DRAWN BY NS
CHECKED BY JM
LINE NUMBER: 96-043

PROPOSED STRUCTURE

APPROVED JM

SH. 2 OF 2

CADFILEPATH

PLOTTED DD-MMM-YYYY AT HH:MM BY PLTUSER