Legal Department

American Electric Power
1 Riverside Plaza
Columbus, OH 43215-2373
AEP.com

December 18, 2018

Ms. Barcy F. McNeal
Docketing Division
Public Utilities Commission of Ohio
180 East Broad Street
Columbus, Ohio 43215-3793

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RE: Case No. 18-1799-EL-BNR
In the Matter of the Construction Notice Application for AEP Ohio Transmission Company, Inc. for a Certificate of Environmental Compatibility and Public Need for the Devola-Gorsuch 138kV Transmission Line Extension Project

Dear Chairman Haque,

Attached please find a copy of AEP Ohio Transmission Company, Inc.'s Construction Notice application for the above-referenced project, which is being submitted pursuant to O.A.C. 4906-6-05.

Copies of this filing will also be submitted to the executive director or the executive director's designee and provided to the OPSB Staff via electronic message.

If you have any questions, please do not hesitate to contact me.
Respectfully submitted,

/s/ Christen M. Blend
Christen M. Blend (0086881), Counsel of Record
Hector Garcia (0084517)

Counsel for AEP Ohio Transmission Company, Inc.

cc: John Jones, Counsel OPSB Staff
Jon Pawley, OPSB Staff

Construction Notice for the Devola – Gorsuch 138 kV Transmission Line Project

Case No. 18-1799-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.

December 18, 2018

Construction Notice

AEP Ohio Transmission Company, Inc.'s Devola - Gorsuch 138 kV Transmission Line Project

4906-6-05

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

4906-6-05(B) General Information

B(1) Project Description

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

AEP Ohio Transco has identified the need to construct the Devola - Gorsuch 138 kV Transmission Line Project ("Project") in Muskingum Township, Washington County, Ohio. The Project consists of constructing a new single-circuit 138 kilovolt (kV) electric transmission line that will be approximately 0.12 miles in length.

The transmission line will be located between the planned Devola Substation and a tap location along the existing Devola – Riverview 138-kV Transmission Line. The Devola Substation is located near the community of Devola, Ohio, which is approximately 2.4 miles north of the City of Marietta. The location of the Project is shown on a United States Geological Survey (USGS) Topographic Map as Exhibit 1 in Appendix A.

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

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

The PUCO Case Number for this project is 18-1799-EL-BNR.

B(2) Statement of Need

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

AEP Ohio Transco, Ohio Power Company, Buckeye Power, Inc. ("Buckeye"), and Washington Electric Cooperative ("Washington") (collectively, "the Companies") have agreed to implement a long-term plan aimed at enhancing the reliability of the southeast Ohio area electric transmission and distribution network, referred to as the Southeast Ohio Improvements Program. The existing infrastructure has reached an age and condition where it is in need of rebuild and redesign to meet the needs of customers across the region. The Companies have developed a multi-year construction plan that will replace much of the existing deteriorating infrastructure in place today.

The focus of the program is to rebuild the area's aged 23-kV infrastructure into a 138-kV network and redesign the system to improve reliability for customers across the region. Bringing additional power sources into the region will improve electric service reliability and provide the electrical capacity for future economic growth. Ultimately, the series of improvements and investment in the area will provide a looped transmission system from the future Lamping to Devola 138-kV substations.

The Project will be part of the overall program by connecting future and existing 138-kV transmission lines in the area. The addition of the Devola-Gorsuch 138 kV transmission line into the planned 138-kV network will improve service reliability to regional customers, thereby enhancing service for customers, decreasing power interruptions, providing for more efficient recovery of service when outages occur, and supporting local economic development.

This project is an ancillary project to the Devola Station (filed in 18-0034-EL-BLN). This Project was included in AEP Ohio Transco's 2018 in Form FE-T9, on page 18. *See* Appendix E. This project is included as PJM number S1125.

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.

Exhibit 2 in Appendix A shows the location of the proposed Project relative to existing electrical transmission and distribution lines.

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.

The proposed route is approximately 0.12 mile and is located between the planned Devola Substation (under construction) and a tap location along the existing Devola – Riverview 138-kV Transmission Line as shown on Exhibit 2. The proposed transmission line is intended to provide a single-circuit 138 kV transmission line connection between the Devola Substation and the Devola – Riverview 138-kV

Transmission Line. AEP Ohio Transco evaluated land options between the Devola Substation and the Devola – Riverview 138-kV Transmission Line to determine the location of the proposed Project.

A formal routing analysis was not performed for this Project because the short distance between the Devola Substation and the proposed Devola – Riverview 138-kV Transmission Line tap (approximately 0.12 mile) yielded only one reasonable route. The proposed route for the Project represented the most appropriate solution for meeting AEP Ohio Transco's need in the area. Specifically, the route was chosen because it is adjacent to existing electric transmission lines, minimizes to area land use (e.g., residential areas), and minimizes ecological impacts (no impacts to streams and wetlands are planned).

The Project will require right-of-way acquisition on four privately owned, undeveloped parcels.

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.

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 served to the public library in each political subdivision affected by this Project. AEP Ohio Transco also retains land agents who will discuss project timelines, construction and restoration activities with affected owners and tenants.

B(6) Construction Schedule

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

Construction is planned to start in March 2019 with an anticipated in-service date of second quarter 2020.

B(7) Area Map

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

Exhibit 3 in Appendix A shows the proposed alignment of the transmission line on an aerial image with clearly marked streets, roads, and highways.

To visit the Project from Marietta City Government Office, take Putnam Street northeast 0.4 mile to the intersection of Putnam Street, 7th Street, and Glendale Road. Follow Glendale Road to the north for 1.2 miles to Colegate Drive. Turn left onto Colegate Drive and travel 0.8 mile before turning right onto Mill Creek Road. Follow Mill Creek Road for 0.28 mile to the Mill Creek Substation located on the right side of the road. The proposed electric transmission line is located immediately to the west of the future Devola Substation site (which is located atop the hill on north side of Mill Creek Road). The project can also be reached by accessing the Devola Substation via the access road.

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.

Construction of the 0.12-mile proposed route for the Project will occur on property owned by AEP Transco Ohio (within the Devola Substation) and across four undeveloped parcels owned by Rucorp LLC (Parcel Identification: 260039696000) and Brant Whited (Parcel Identifications: 240039696001, 240039648001, 240039620001). AEP Transco is working with the aforementioned private landowners to acquire the requisite easements for the proposed transmission line right-of-way.

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 will consist of a single-circuit transmission line designed to operate at 138 kV and require a 100-foot wide right-of-way easement on property owned by AEP Ohio Transco and two private land owners.

The Project will include two (2) custom monopole steel structures with concrete foundations.

Examples of the proposed structure types and their configurations can be found in Appendix B.

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

Not applicable. The proposed Project is not located within 100 feet of an occupied residence or institution. The nearest residence to the proposed Project is approximately 675 feet to the south.

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.

Not applicable. The proposed Project is not located within 100 feet of an occupied residence or institution. The nearest residence to the proposed Project is approximately 675 feet to the south.

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

The estimated capital cost of the project.

The capital cost 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 Muskingum Township, Washington County, Ohio, approximately 2.4 miles north of the City of Marietta. The proposed route crosses though vacant land down a hill. The closest non-vacant land use is a residence located approximately 675 feet to the south of the Project's centerline (approximately 1,215 feet to the southwest of the planned Devola Substation). Dense mature vegetation separates the residence and the proposed transmission line which provide visual screening of the Project from the residence.

The proposed Devola - Gorsuch 138 kV transmission line will not impact existing land uses or future land use patterns near the site; furthermore, it will be strategically located adjacent to an existing electric transmission line corridor thereby minimizing visual impacts to the area. Vegetative communities within the Project Area include upland forest and scrub-shrub.

There are no cemeteries, churches, schools, or other community facilities located within 1,000 feet of the proposed Project location. The nearest residence is approximately 675 feet to the south of the proposed route. (Exhibit 3 in Appendix A).

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.

AEP Ohio Transco's consultant contacted the Washington County Auditor to obtain information about Agricultural District lands and received the requested data via email on October 29, 2018. The proposed Project will be constructed on privately owned parcels which are not listed by the Washington County Auditor's Office as part of a registered agricultural district. These parcels are not currently used for agricultural production.

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 October 2018, AEP Ohio Transco's consultant reviewed the Project for a cultural resources impact assessment (Appendix C). The Project Area was examined through Phase I cultural resources investigations associated with the Bell Ridge - Devola and Macksburg - Devola Projects. Together, these assessments address archaeological and architectural resources in the Devola – Gorsuch Project Area. A literature review indicated that there are no formally recorded resources located in the Project Area.

Phase I archaeological surveys for Macksburg - Devola and Bell Ridge - Devola were conducted in June and July 2017 utilizing both pedestrian reconnaissance and shovel testing within the survey areas. No archaeological sites were identified within the current Project Area and five archaeological sites were documented within the Macksburg - Devola survey area. The Project Area exhibits excessive slope and eroded or disturbed soils; therefore, AEP Ohio Transco's consultant recommends no further archaeological work and a consideration of "no historic properties or landmarks affected" is appropriate for the Project.

The architectural and historical resources surveys were conducted in June and July 2017 did not result in the identification of any historic properties. AEP Ohio Transco's consultant recommends a finding of "no historic properties affected," and does not recommend any further cultural resource management work for the Project.

These reports for Macksburg - Devola were submitted to the Ohio Historic Preservation Office ("OHPO") on August 23 and 24, 2017. AEP Ohio Transco received concurrence on September 11, 2017. The reports for Bell Ridge - Devola were submitted to the OHPO on January 16 and 29, 2018. AEP Ohio Transco received concurrence on February 12, 2018 (Appendix C).

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.

If necessary, a Notice of Intent will be filed with the Ohio Environmental Protection Agency for authorization of construction stormwater discharges under General Permit OHC000004, and AEP Ohio Transco will implement and maintain best management practices (BMPs), as outlined in the project-specific Storm Water Pollution Prevention Plan (SWPPP), to minimize erosion and control sediment to protect surface water quality during storm events. The Project as currently planned would not impact any wetlands or waterways. (See Appendix D).

The Project is not located within a Federal Emergency Management Agency (FEMA) 100-year floodplain area. Therefore, no floodplain permitting is 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.

Coordination with Ohio Department of Natural Resources (ODNR) Division of Wildlife (DOW) was initiated to obtain Ohio Natural Heritage Database records within a 1-mile radius of the proposed Devola Station Study Area. ODNR records of state and federally listed species, provided November 20, 2017, indicates that 29 state- or federally-listed species have known occurrences within a 1-mile radius of the Project.

Of these 29 species, potential habitat for only two of the species, Indiana bat (*Myotis sodalis*) and black bear (*Ursus americanus*), were identified within the Project Study Area. Due to the nature of the Project, adherence to seasonal tree cutting requirements during construction, and the mobility of the species, ODNR concurs that this Project is not likely to impact any of the listed species. Information on species obtained from U.S. Fish and Wildlife Service (USFWS) county lists and the ODNR-DOW Ohio Natural Heritage Database is provided in the Ecological Resources Inventory Report in Appendix D.

The USFWS *Federally Listed Species by Ohio Counties January 2018* (available at https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyList29Jan2018.pdf) was reviewed to determine the threatened and endangered species currently known to occur in Washington County, Ohio. This USFWS publication listed the following threatened or endangered species as occurring in Washington County: Indiana bat (*Myotis sodalis*; federally endangered), northern long-eared bat (*Myotis*

septentrionalis; federally threatened), fanshell (*Cyprogenia stegaria*; federally endangered), pink mucket pearly mussel (*Lampsilis abrupta*; federally endangered), sheepnose (*Plethobasus cyphyus*; federally endangered), snuffbox (*Epioblasma triquetra*; federally endangered).

As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS Ohio Ecological Services Field Office on August 30th, 2017 seeking technical assistance on the Project for potential impacts to threatened or endangered species. The USFWS indicated that the proposed Project is within the range of the Indiana bat and northern long-eared bat in Ohio but not within known Indiana bat buffers. If tree-clearing occurs between October 1 and March 31, USFWS does not anticipate the Project having any adverse effects to these species or any other federally listed endangered, threatened, proposed, or candidate species. The USFWS letter did not include comments specific to the other federally listed species.

Based on the nature of the proposed Project activities and habitat characteristics of the surrounding vicinity, construction impacts to protected species are not anticipated. Winter tree clearing will be implemented to reduce impacts to bat species and their habitat. AEP Ohio Transco will coordinate with USFWS and ODNR regarding additional construction requirements, if required by these agencies.

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.

No wildlife management areas or nature preserve lands are located within 1,000 feet of the Project. Correspondence received from the USFWS (Appendix D) indicates that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the Project Area.

The FEMA Flood Insurance Rate Map (FIRM) was consulted to identify any floodplains/flood hazard areas that have been mapped in the Project Study Area. Based on this map, no mapped FEMA floodplains are in the Project Area. Therefore, no floodplain permits will be required for this Project.

A review of the National Wetlands Inventory (NWI) database indicated that there are no NWI-mapped wetlands present within the Project Area. Wetland and waterbody delineations as well as a general habitat assessment surveys were completed by Jacobs within the Project Study Area on January 23, 2018, and October 10, 2018. The results of the wetland and waterbody delineations are presented in the Ecological Resources Inventory Report included in Appendix D. Pursuant to the aforementioned Ecological Resources Inventory Report, one wetland was delineated within the Project Study Area. There are five streams (unnamed tributaries to Muskingum River) within the Project Study Area. No in-water work is proposed as part of the Project and therefore impact to any of the delineated features is not anticipated. The USFWS

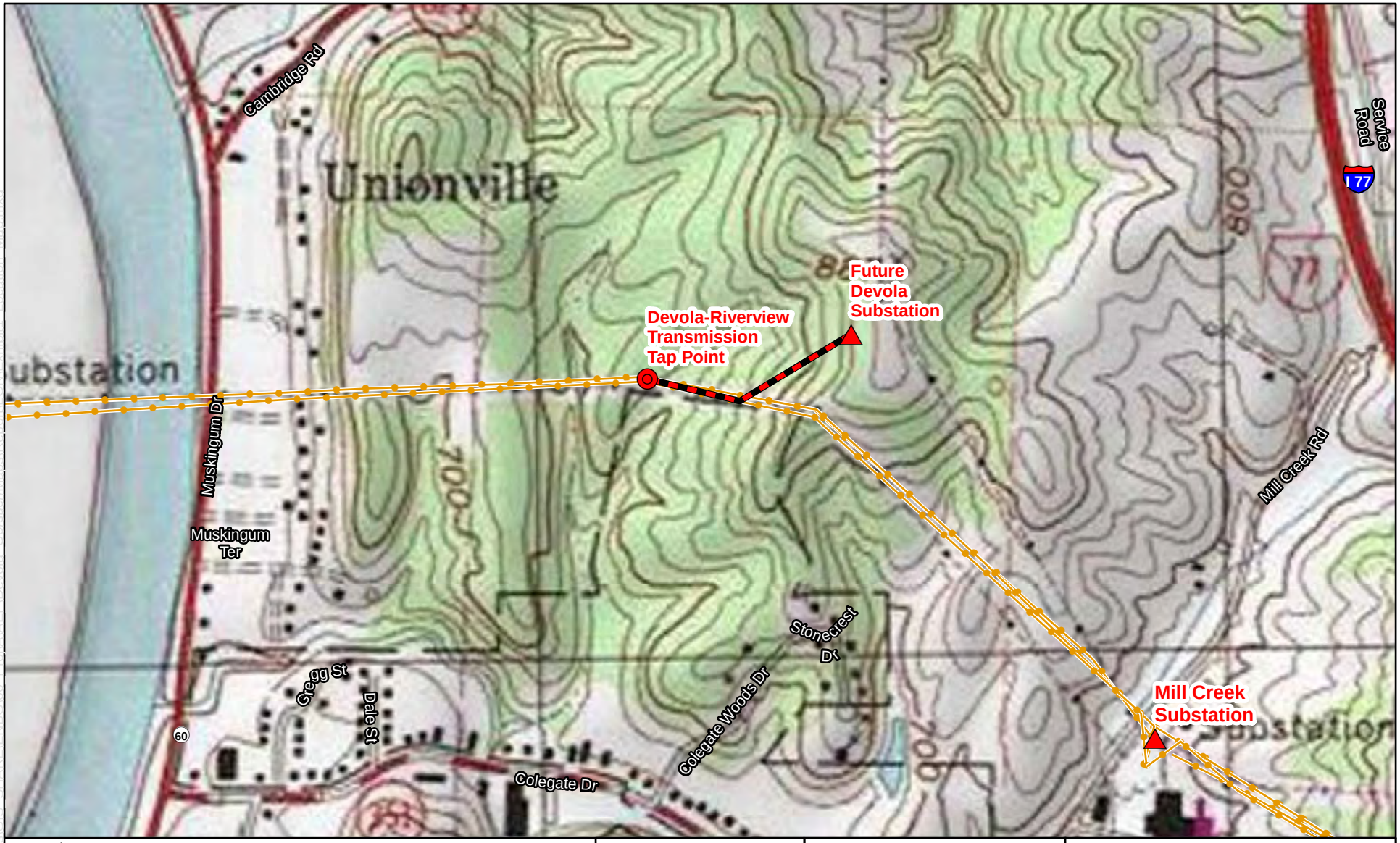
recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitats including preserving natural buffers around streams and wetlands to enhance beneficial functions. The appropriate best management practices will be deployed to achieve this objective.

B(10)(g) Unusual Conditions

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

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

Appendix A Project Maps



Legend

- Substation
- Devola-Riverview Transmission Tap Point
- Proposed Devola-Gorsuch Transmission Line
- Existing Transmission Line (138kV)

BASE MAP SOURCE:
USGS 7.5-minute
Topographic Quadrangles:
Marietta

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:8,000

November 06, 2018

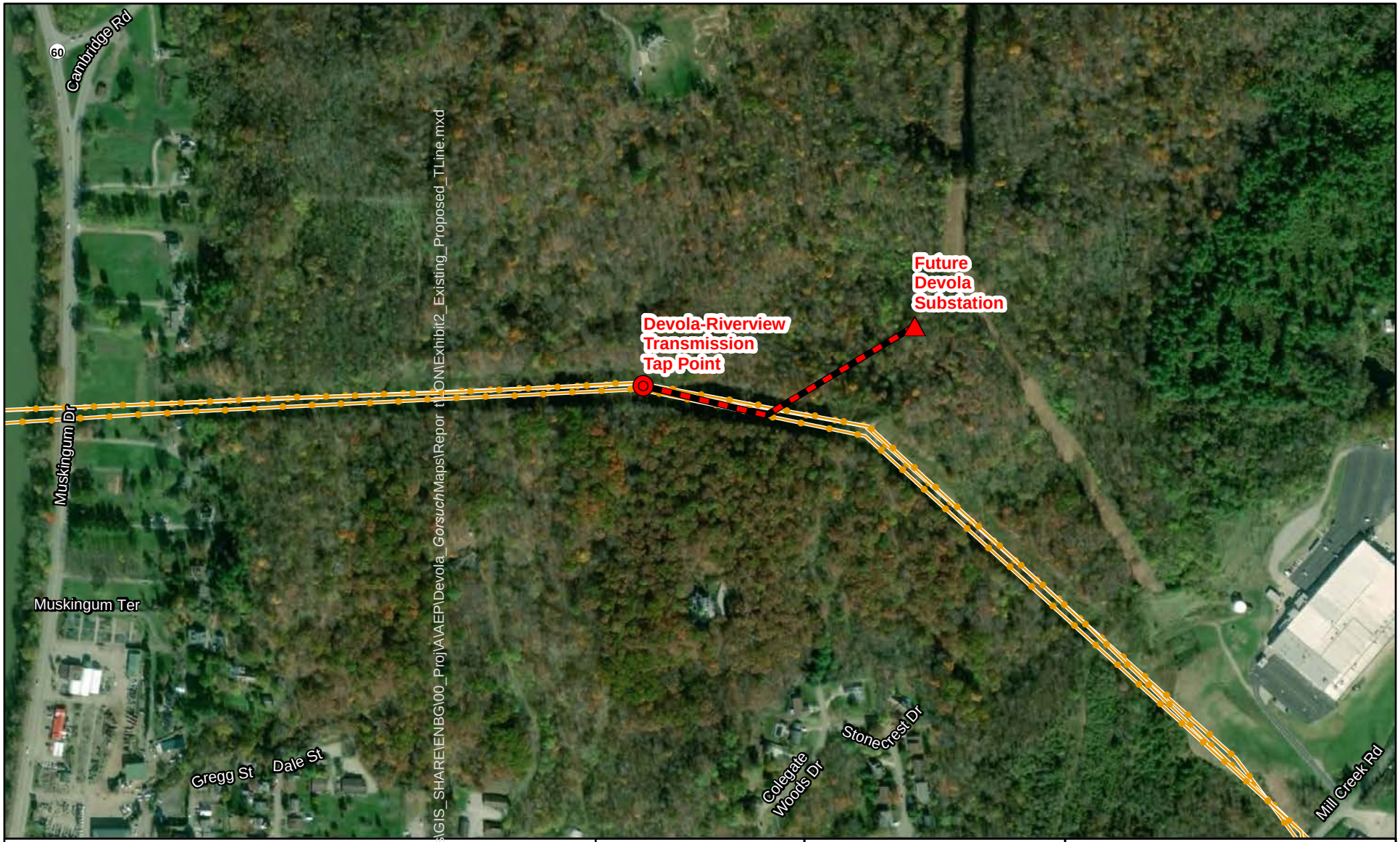
LOCATOR MAP

EXHIBIT 1
LOCATION MAP

AEP OHIO

Proposed Devola_Gorsuch
138 kV Transmission Line

0 500 1,000
Feet



Legend

- Substation
- Devola-Riverview Transmission Tap Point
- Proposed Devola-Gorsuch Transmission Line
- Existing Transmission Line (138kV)

BASE MAP SOURCE:
ESRI World Imagery 2016

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:6,000

November 06, 2018

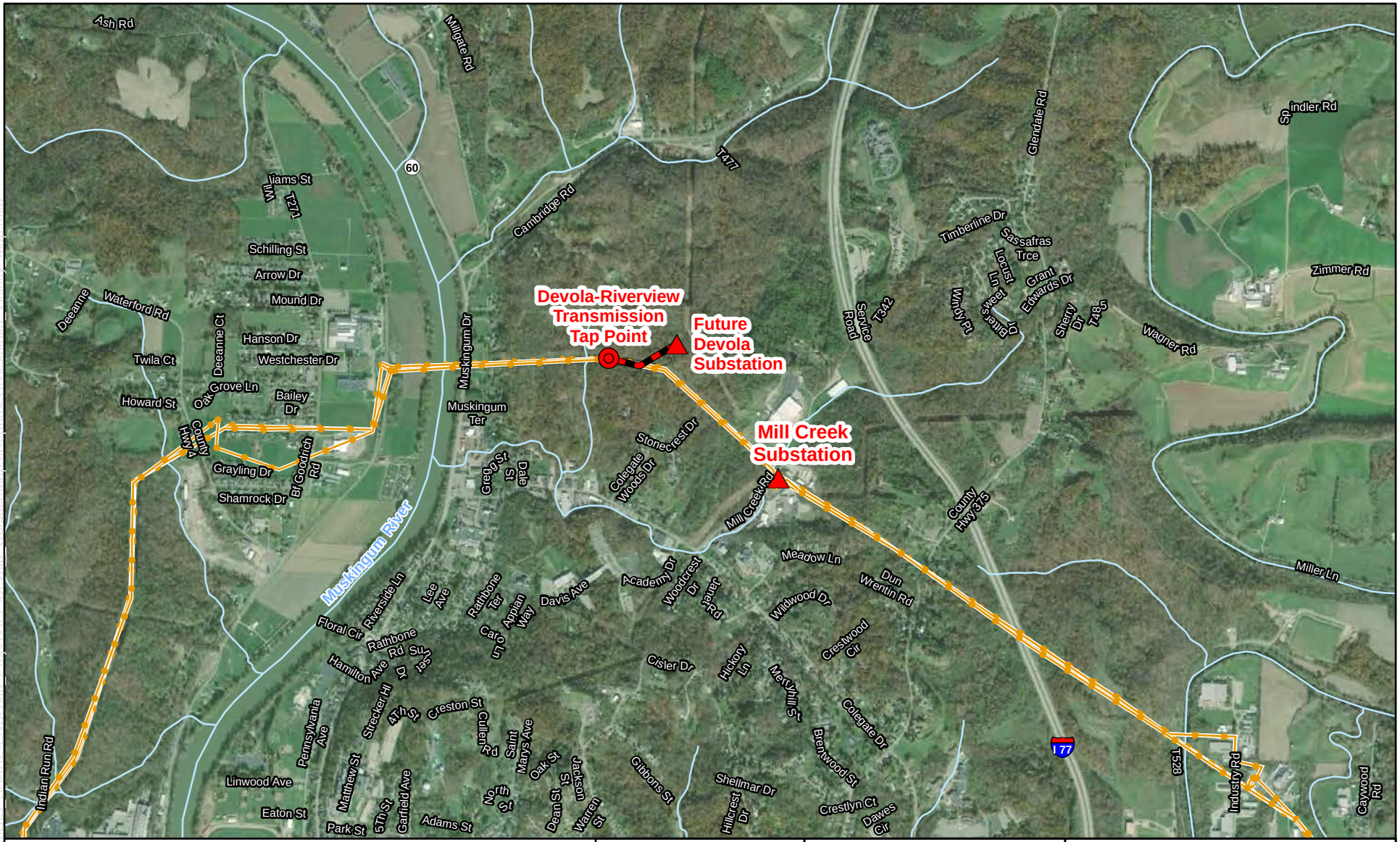
LOCATOR MAP

EXHIBIT 2
EXISTING AND PROPOSED TRANSMISSION LINE MAP

AEP OHIO

Proposed Devola_Gorsuch
138 kV Transmission Line

0 500 1,000
Feet



Legend

- Substation
- Devola-Riverview Transmission Tap Point
- Proposed Devola-Gorsuch Transmission Line
- Existing Transmission Line (138kV)
- Stream (NHD)

BASE MAP SOURCE:
ESRI World Imagery 2016

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:24,000

November 06, 2018

LOCATOR MAP

EXHIBIT 3
VICINTY MAP

AEP OHIO

Proposed Devola_Gorsuch
138 kV Transmission Line

0 1,000 2,000
Feet

Appendix B Project Design Drawings

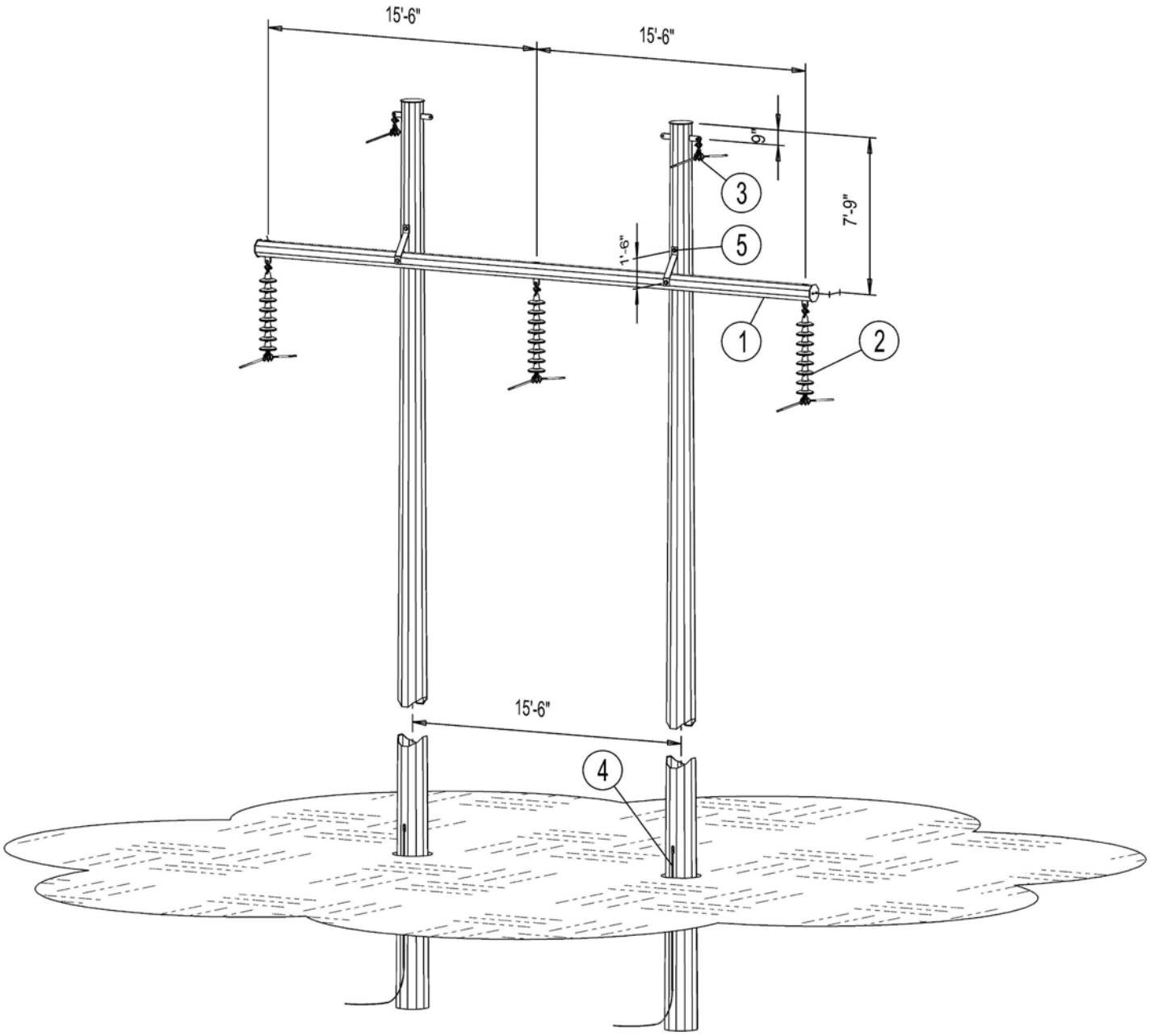


Figure 5-1A

REV	DESCRIPTION	BY	DATE
6	REVISED BILL OF MATERIAL	McP	04/30/15

AEP AMERICAN ELECTRIC POWER

TRANSMISSION LINE STANDARDS

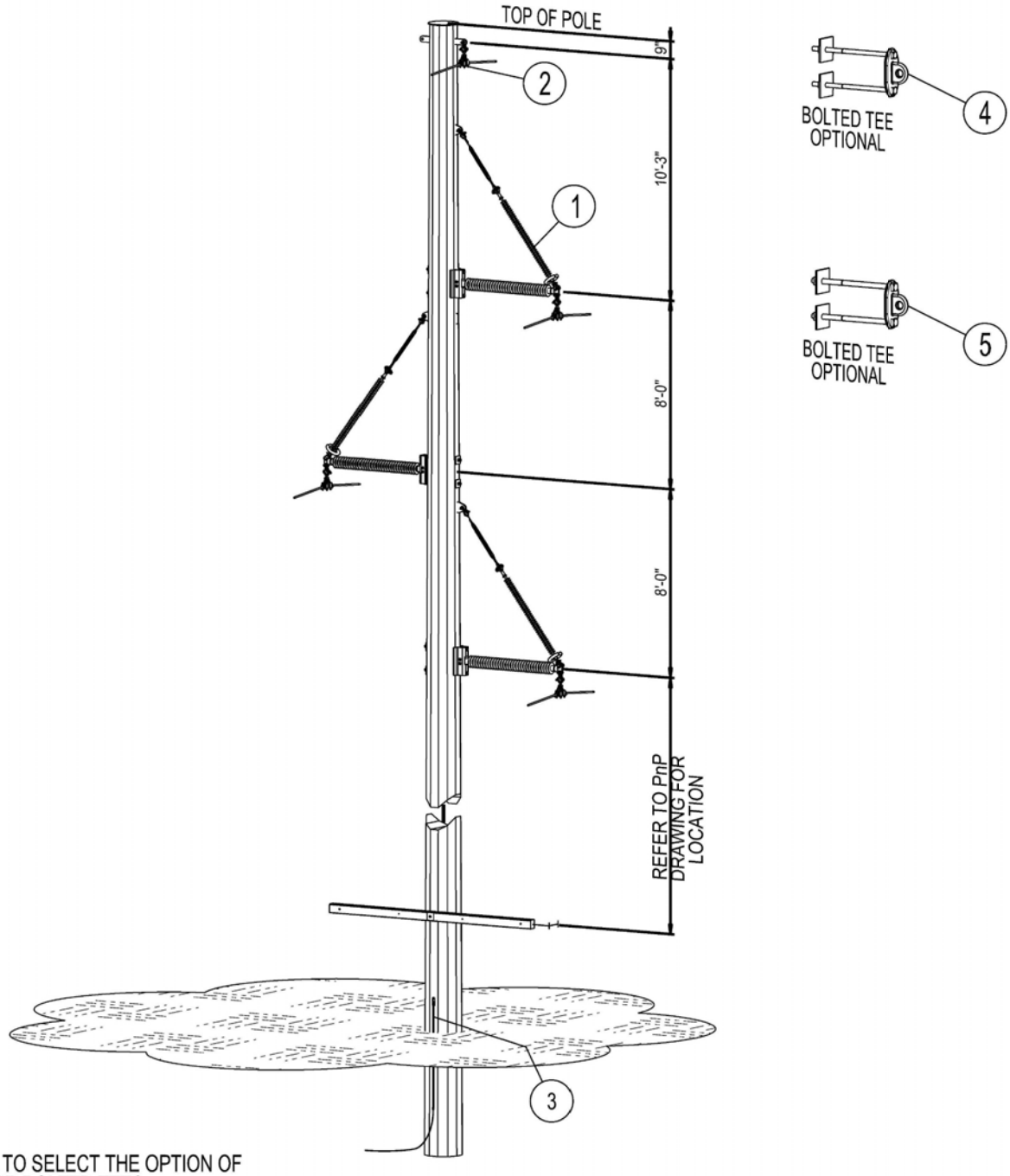
H-FRAME, GALVANIZED STEEL

ENGR:	DRAWN: McP	CHECKED:	APPROVED: JAH	DATE: 06/19/07

DRAWING No.	SHEET No.	REV. No.
CS45-0633	1	6

REF. DRAWINGS

ITEM	QTY.	ASSEMBLY	DESCRIPTION	
1	3	13B5-2739	138KV INSULATOR, POLYMER, 0° DEGREE BRACED POST, W/CORONA RING	
2	1	30T0-1102	OHGW, SUSPENSION, CONCRETE, STEEL OR WOOD POLE	
3	1	21SE-1456	GROUND ROD FOR DIRECT EMBEDDED STEEL POLE	
4	1	71A0-1231	3/4 IN FLAT DEAD-END TEE	
5	3	71A0-1233	7/8 IN FLAT DEAD-END TEE	



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

Figure 5-1B

REV	DESCRIPTION	BY	DATE
1	REVISED STRUCTURE - SAS	McP	03/03/16

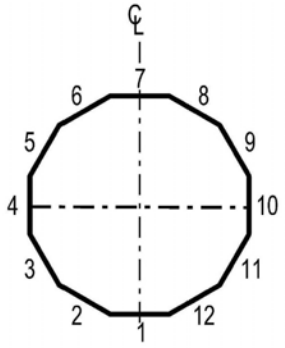
AEP AMERICAN ELECTRIC POWER

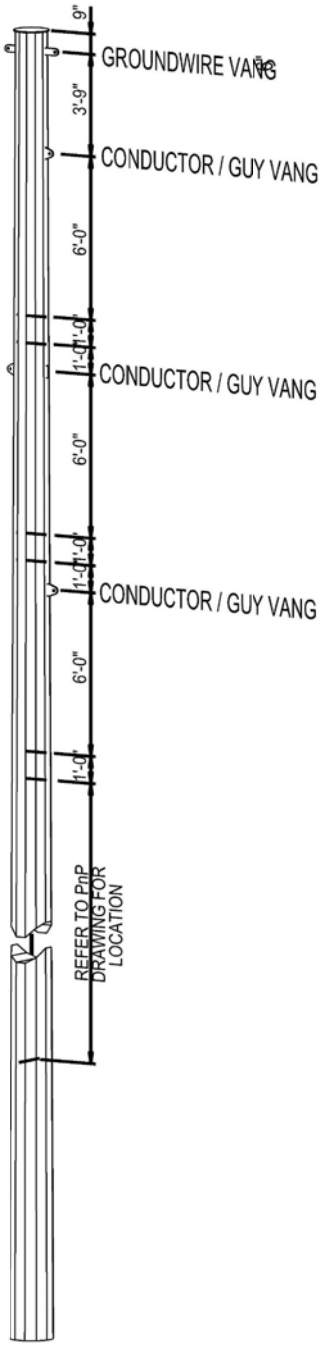
TRANSMISSION LINE STANDARDS

POLYMER - 138KV SINGLE CIRCUIT, ALTERNATING, ZERO DEGREE BRACED POST W/CORONA RING, STEEL

ENGR:	DRAWN: SAS	CHECKED: McP	APPROVED: JCN	DATE: 10/17/12

DRAWING No. CS11-2395 | SHEET No. 1 | REV. No. 1





VANG TABLE	
16.5K	
24.75K	
33K	
49.5K	

NOTES:
1. ALL HOLES TO BE $^{15}/_{16}$"Ø.
2. ALL HOLES FOR TRANSMISSION LINES ARE ON AXIS "4-10".
3 REFER TO DRAWING NO. 01D5-1225 FOR VANG AND GROUNDING NUT DETAILS.

Figure 5-1C

REV	DESCRIPTION	BY	DATE
1	REVISED STRUCTURE - SAS	McP	03/03/16

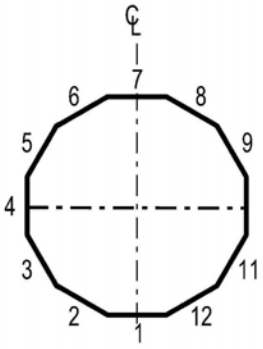
AEP AMERICAN ELECTRIC POWER

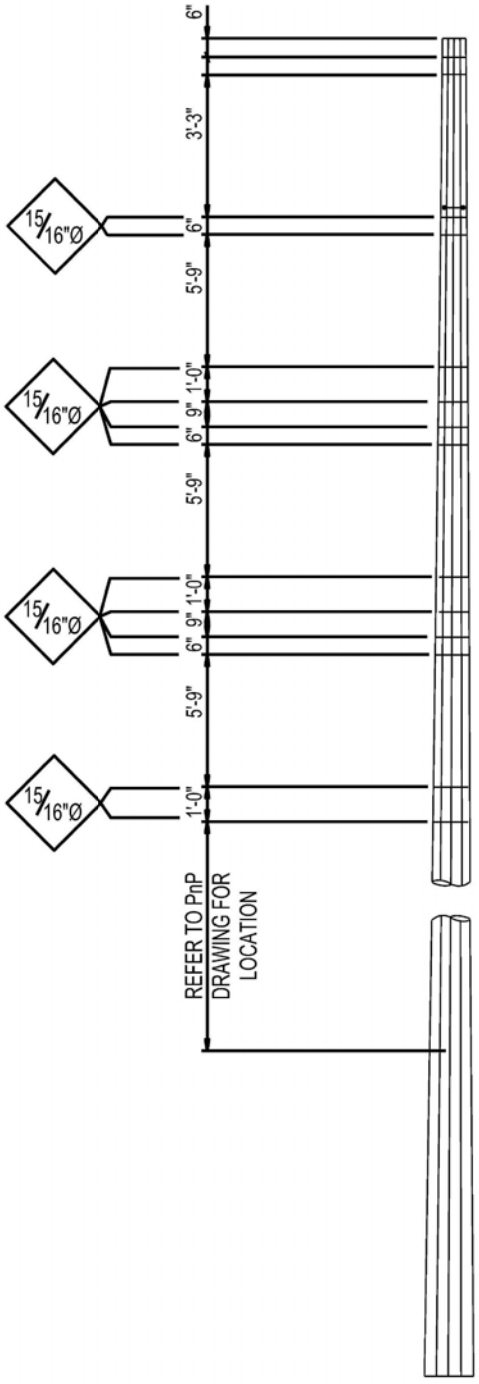
TRANSMISSION LINE STANDARDS
DRILL LOCATIONS
POLYMER - 138KV SINGLE CIRCUIT, ALTERNATING, ZERO DEGREE BRACED POST W/CORONA RING, STEEL

ENGR:	DRAWN: SAS	CHECKED: McP	APPROVED: JCN	DATE: 10/17/12

DRAWING No. CS11-2395 | SHEET No. 2 | REV. No. 1

Archive ID: 905-600





NOTES:
1. ALL HOLES SHALL BE 13/16"Ø UNLESS NOTED.
2. ALL HOLES FOR TRANSMISSION LINES ARE ON AXIS "4-10".

Figure 5-1D

REV	DESCRIPTION	BY	DATE
1	REVISED STRUCTURE - SAS	McP	03/03/16

AEP AMERICAN ELECTRIC POWER

TRANSMISSION LINE STANDARDS
DRILL LOCATIONS
POLYMER - 138KV SINGLE CIRCUIT,
ALTERNATING, ZERO DEGREE BRACED POST
W/CORONA RING, STEEL

ENGR:	DRAWN: SAS	CHECKED: McP	APPROVED: JCN	DATE: 10/17/12

DRAWING No. CS11-2395 | SHEET No. 3 | REV. No. 1

Archive ID: 905-600

Appendix C Architectural and Historical Resources Report & Ohio Preservation Office Concurrence Letter

JACOBS®

Devola - **Gorsuch** 138 kV Transmission Line Project, Washington County, Ohio

Cultural Resources Literature Review

October 19, 2018

American Electric Power

AMERICAN ELECTRIC POWER™

BOUNDLESS ENERGY™

Devola - Gorsuch 138 kV Transmission Line Project, Washington County, Ohio

Project No:	708056
Document Title:	Cultural Resources Literature Review for the Devola - Gorsuch, 138 kV Transmission Line Project, Washington County, Ohio
Date:	October 19, 2018
Client Name:	American Electric Power
Project Manager:	Jonathan Schultis
Author:	Amy C. Favret, MA., RPA
File Name:	

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www.jacobs.com

Contents

Table(s)

Figure(s)

Acronyms and Abbreviations

AEP	American Electric Power Transmission Company
APE	Area of Potential Effect
CH2M	CH2M Hill, Engineers, Inc. now Jacobs Engineering Group, Inc.
DOE	Determination of Eligibility
NRHP	National Register of Historic Places
OAI	Ohio Archaeological Inventory
OHI	Ohio Historic Inventory
OHPO	Ohio Historic Preservation Office
Project	Devola - Gorsuch 138 kV Transmission Line Project

1. Introduction

On behalf of American Electric Power Ohio Transmission Company (AEP Ohio Transco), Jacobs Engineering Group, Inc. (Jacobs) of Cincinnati, Ohio, conducted a cultural resources records review for the proposed Devola - Gorsuch 138 kV Transmission Line Project (Project) in Marietta, Washington County, Ohio (Figures 1 and 2). The Project consists of a new 600-foot (183-meter) long 138 kV transmission line connecting the Devola Substation with the Devola - Riverview Transmission Line. This Project is part of the Southeast Ohio Area Improvements Project in southeastern Ohio. This cultural resources literature review details previously identified cultural resources and previous cultural resources studies conducted within 1.6 kilometers (one mile) of the Project.

The Project area corresponds to the 183-meter (600-foot) transmission line alignment and is defined as the vertical and horizontal space that will be impacted by Project activities. This also constitutes the Area of Potential Effects (APE). Based on information provided by AEP Ohio Transco, construction activities related to the development of the new transmission line include the installation of tangent, braced-post, delta structure poles and/or davit-arm, delta structure poles that will require a concrete footing at each location. The proposed ROW for the Project measures 30.5 meters (100 feet) wide. The foundations for each pole location will require the excavation of approximately 1.8- to 2.4-meter (six- to eight-foot) diameter holes, that extend to a depth of 7.6 to 10.7 meters (25 to 35 feet).

Review of records available through the Ohio Historic Preservation Office (OHPO) revealed that while no archaeological resources are recorded within the Project APE, previous archaeological investigations have identified several archaeological sites within 1.6 kilometers (one mile) of the Project. The results of this literature review will be used to inform the need for additional cultural resources studies required for the Project, if any.

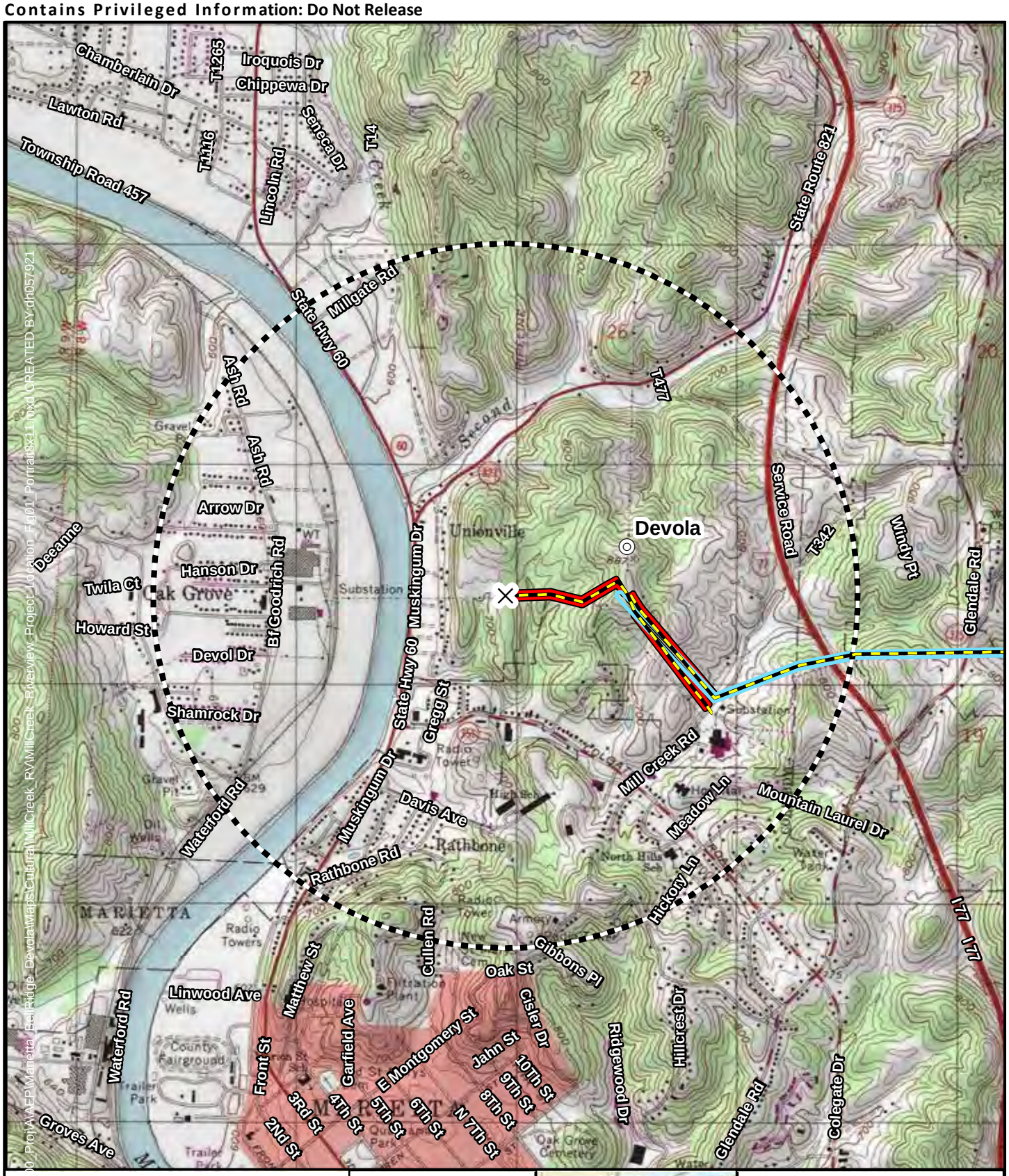
2. Records Review

The literature review was directed toward identifying previously inventoried archaeological sites, architectural and historical resources, and other cultural resources. Research was conducted using the OHPO Online Mapping System and available historic mapping. Jacobs focused on a 1.6-kilometer (one-mile) radius study area centered on the Project corridor, but also examined the larger region where appropriate. Data were collected for the following resources and/or resource types:

- National Historic Landmarks (NHL) List
- National Register of Historic Places (NRHP)
- Determination of Eligibility (DOE) files
- Ohio Historic Inventory (OHI)
- Ohio Archaeological Inventory (OAI)
- Ohio Genealogical Society (OGS) Cemetery Files
- Previous Cultural Resources Management reports
- Historic Maps and Atlases

Based a review of the records available through the OHPO online mapping database, one NRHP-listed resource, 152 OHI-listed resources, 37 OAI-listed archaeological sites, and one OGS-listed cemetery have been inventoried within 1.6 kilometers (one mile) of the Project (Figure 3). No NRHP-eligible resources (DOE files), historic bridges, or NHLs were identified during the review. Additionally, seven previous cultural resources investigations, including six Phase I cultural resources surveys and one Phase II survey, have been documented within the study radius. Of the total 191 cultural resources inventoried within the study area, none is within or adjacent to the project area.

Contains Privileged Information: Do Not Release



LEGEND:

- Structure 7
- Substation
- Mills Creek to Riverview Centerline
- Study Radius (1-mi.)
- Bell Ridge-Devola Survey Area
- Project Area

Base Map Source:
USGS 7.5-minute
Topographic Quadrangles:
Fleming, OH (published 1961)
and
Marietta,OH (published 1978)

N
0 305 610
Meters
0 1,000 2,000
Feet

October 12, 2018

LOCATOR MAP

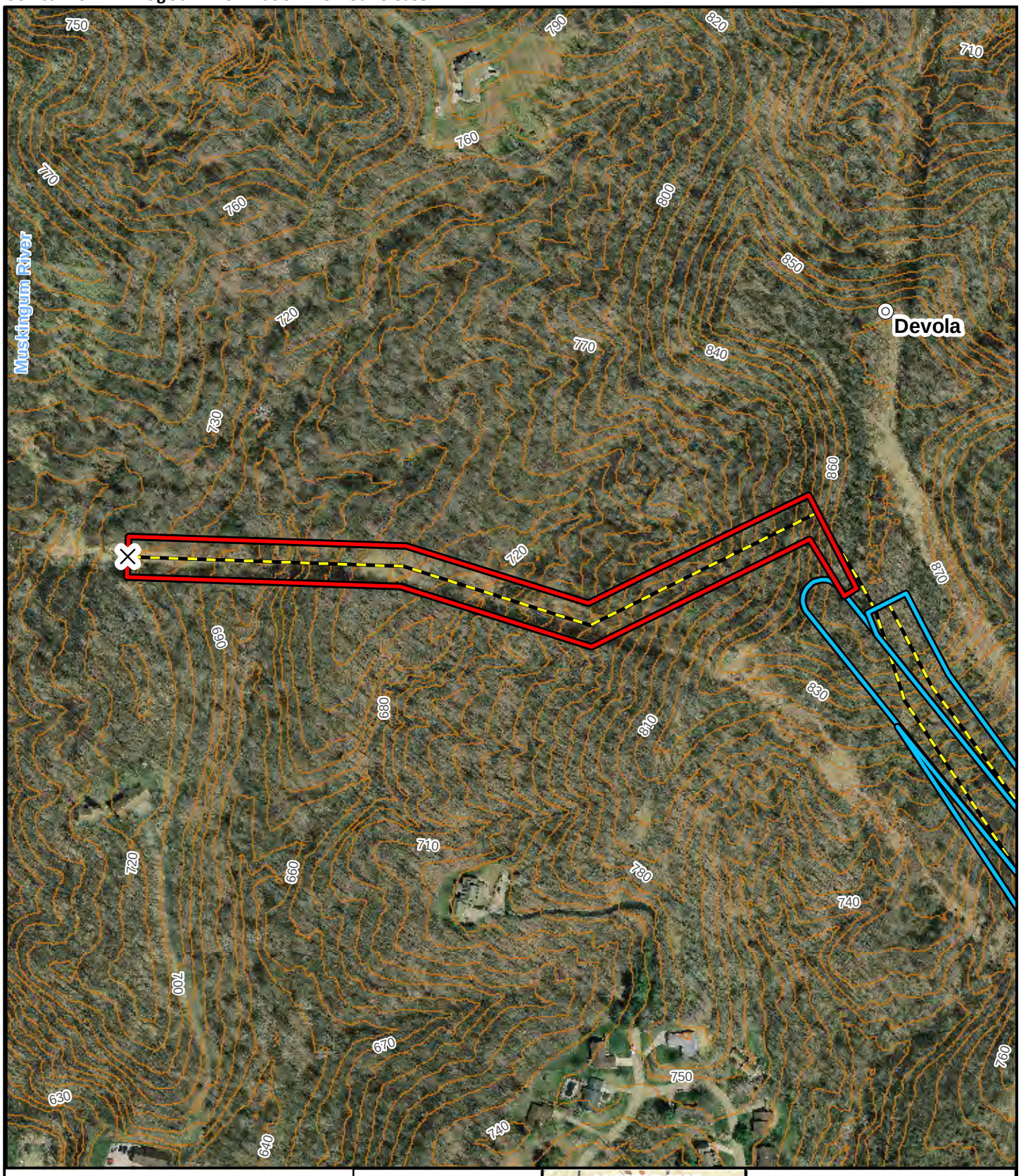
Figure 1.
Project Location

Devola - Gorsuch
138kV Transmission Line Project
Washington County, Ohio

CREATED BY: DG
REVIEWED BY: AF

JACOBS

Contains Privileged Information: Do Not Release



LEGEND:

- Structure 7
- Substation
- 10' Topographic Contour
- Mills Creek to Riverview Centerline
- Bell Ridge-Devola Survey Area
- Project Area

Base Map Source:
OGIP: State of Ohio Office of Information Technology, Ohio Geographically Referenced Information Program (2014)

N

0 50 100
Meters
0 150 300
Feet

October 15, 2018

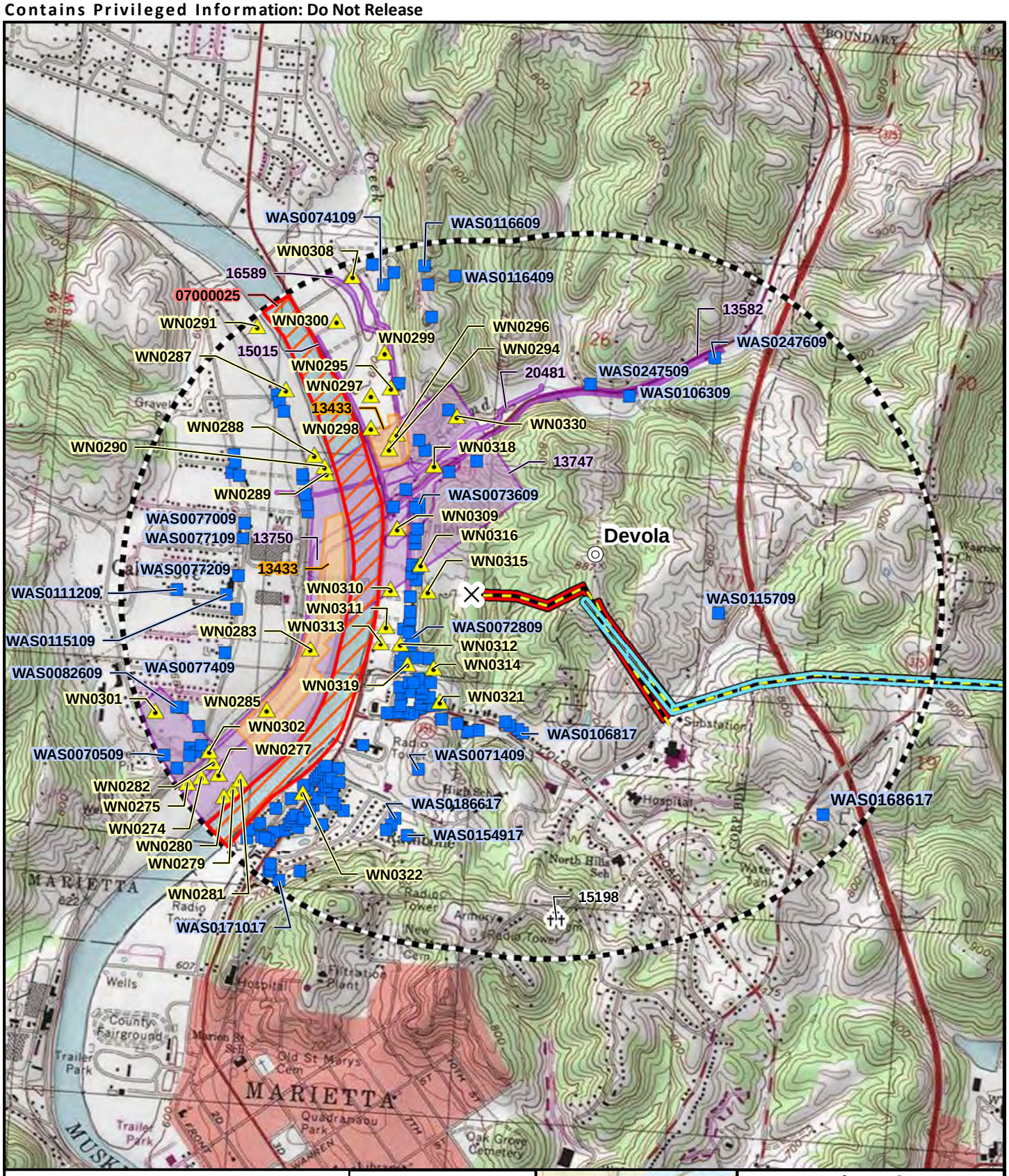
Figure 2
Project Overview

Devola - Gorsuch
138kV Transmission Line Project
Washington County, Ohio

CREATED BY: DG
REVIEWED BY: AF

JACOBS

Contains Privileged Information: Do Not Release



LEGEND:

- Substation
- Structure 7
- OGS Cemetery
- Historic Structure
- Archaeological Site
- NR Boundary
- Previous Phase I Survey
- Previous Phase II Survey
- CH2M Surveyed 2017
- Mills Creek to Riverview Centerline
- Study Radius (1-mi.)
- Bell Ridge-Devola Survey Area

Base Map Source: USGS 7.5-minute Topographic Quadrangles:Fleming, OH (published 1961) and Marietta, OH (published 1978)
Cultural Resources Source: Ohio State Preservation Office (OHPO) Online Mapping System, accessed 10/8/2018

N
0 305 610
Meters
0 1,000 2,000
Feet

October 17, 2018

LOCATOR MAP

Figure 3
Previously Inventoried Cultural Resources

Devola - Gorsuch
138kV Transmission Line Project
Washington County, Ohio

CREATED BY: DG
REVIEWED BY: AF

JACOBS

2.1 National Register of Historic Places

One NRHP-listed Historic District is located within the study area. The Muskingum River Navigation District stretches the length of the river, through Coshocton, Morgan, Muskingum, and Washington Counties. The portion of the district that passes through Washington County is approximately 430 meters (1,411 feet) to the west of the Project's western extent.

2.2 Ohio Historic Inventory

There are 153 OHI-listed resources within the study area (Table 1). Of these, the majority (N=89) are identified as single dwellings. In addition, there are 46 OHI-listed resources identified as a single residence and/or outbuilding, barn, carriage house/garage, or secondary residential building. The remaining resources include five barns, five carriage houses/garages, three mills or processing facilities, two orphanages, two service stations, one social/civic center, one transportation resource, one cemetery, and one resource of unknown use. The OHI-listed cemetery (WAS0071409), the Washington County Children's Home Cemetery is not currently included in the OGS Cemetery Registry. None of the previously inventoried OHI-listed resources is located within or adjacent to the current Project area (see Figure 3).

Table 1. Previously Inventoried OHI-Listed Resources within the Study Area.

OHI Number	Resource Name	Location	Resource Type	Date
WAS0056009	Bryon Talbot House	Devola	Single Dwelling	1875
WAS0069709	Ellen Snedicker House	Devola	Single Dwelling	1945
WAS0069809	Roy Donnelly House	Muskingum Township	Single Dwelling	1900
WAS0069909	Albert Lang House	Muskingum Township	Single Dwelling/Agricultural Outbuildings	1910
WAS0070009	Robert Baird House	Rathbone	TRANSPORTATION	1939
WAS0070109	Susan & Klaus Wielitzka House	Rathbone	Mill/Processing/Manufacturing Facility	1939
WAS0070209		Rathbone	Unknown Use	N/A
WAS0070309		Rathbone	Service Station	1920
WAS0070409		Oak Grove	Mill/Processing/Manufacturing Facility	1925
WAS0070509	Susan Bock House	Oak Grove	Mill/Processing/Manufacturing Facility	1925
WAS0070709		Oak Grove	Barn	1890
WAS0070809		Oak Grove	Single Dwelling	1920
WAS0070909	Gregg Duff House	Oak Grove	Single Dwelling	1860
WAS0071009		Oak Grove	Barn	1890
WAS0071209	Tewkesbury Family House	Rathbone	Orphanage	1941
WAS0071309		Rathbone	Orphanage	1880
WAS0071409		Rathbone	Cemetery	1867
WAS0071509	Chuck Caldwell House	Unionville	Single Dwelling	1930
WAS0071609	Bonnie Landsittel House	Unionville	Single Dwelling	1930
WAS0071709	Lucille Darrah House	Unionville	Single Dwelling	1940

OHI Number	Resource Name	Location	Resource Type	Date
WAS0071809	S J Brockmeier House	Unionville	Single Dwelling/Agricultural Outbuildings	1900
WAS0072009	Claude Cameron House	Unionville	Carriage House/Garage	1900
WAS0072109	Tim Stevens House	Unionville	Single Dwelling/Agricultural Outbuildings	1900
WAS0072209	John Hammat House	Unionville	Single Dwelling	1900
WAS0072309	Patrick Lang Family House	Unionville	Single Dwelling	1900
WAS0072409	Clyde Hill House	Unionville	Single Dwelling	1900
WAS0072509	Robert Worstell House	Unionville	Single Dwelling/Agricultural Outbuildings	1920
WAS0072609	Jones/Walter House	Unionville	Single Dwelling/Agricultural Outbuildings	1910
WAS0072709		Unionville	Single Dwelling/Agricultural Outbuildings	1910
WAS0072809	Cecil Gossett House	Unionville	Single Dwelling	1920
WAS0072909	L Eugene Plummer House	Unionville	Single Dwelling	1890
WAS0073009	Roy Wallace House	Unionville	Single Dwelling/Barn	1890
WAS0073109	Lloyd & Ethel Noland House	Unionville	Single Dwelling	1919
WAS0073209	Thrasher	Unionville	Single Dwelling	1880
WAS0073309	Carl Rose Jr House	Unionville	Single Dwelling/Agricultural Outbuildings	1880
WAS0073409		Unionville	Single Dwelling	1910
WAS0073509	Bernard Barth House	Unionville	Single Dwelling/Agricultural Outbuildings	1890
WAS0073609	Ohio Dept of Transportation	Unionville	Single Dwelling/Agricultural Outbuildings	1900
WAS0073709	Ohio Dept of Transportation	Unionville	Single Dwelling	N/A
WAS0073809	Ohio Dept of Transportation	Devola	Single Dwelling/Barn	1900
WAS0073909	Washington County Garage	Devola	Single Dwelling	1920
WAS0074009	Marietta Structures Corp	Devola	Single Dwelling	1943
WAS0074109	Marietta Structure Corp	Devola	Single Dwelling	1890
WAS0074209	Elizabeth Hoff Barn	Devola	Barn	1880
WAS0074309	F Weinheimer House	Devola	Carriage House/Garage	1910
WAS0075709	J Reckard House	Oak Grove	Single Dwelling/Agricultural Outbuildings	1854
WAS0075809	Barn	Oak Grove	Barn	1854
WAS0075909	ODOT	Oak Grove	Single Dwelling	N/A

OHI Number	Resource Name	Location	Resource Type	Date
WAS0076009	Washington Co Children's Svc	Oak Grove	Single Dwelling/Agricultural Outbuildings	1890
WAS0076109	Washington Co Children's Home Cemetery	Oak Grove	Single Dwelling	1900
WAS0076209	EL Buell House	Oak Grove	Single Dwelling	1860
WAS0076309	EL Buell House	Oak Grove	Barn	1860
WAS0076409	EL Buell House	Oak Grove	Single Dwelling	1850
WAS0076709	William & Betty Stewart House	Oak Grove	Single Dwelling/Agricultural Outbuildings	1900
WAS0076809	Janine Eddy House	Oak Grove	Single Dwelling/Barn	1920
WAS0076909	Cledith Green House	Oak Grove	Single Dwelling/Barn	1910
WAS0077009	Cram et al	Oak Grove	Single Dwelling	1900
WAS0077109		Oak Grove	Single Dwelling	1890
WAS0077209	Cram et al	Oak Grove	Single Dwelling	1900
WAS0077309	Cram et al	Oak Grove	Single Dwelling	1920
WAS0077409	Cram et al	Oak Grove	Single Dwelling	1905
WAS0077509	Pastor Robert Byers House	Oak Grove	Single Dwelling/Agricultural Outbuildings	1910
WAS0077717	EL Buell House/Cram House	Marietta	Single Dwelling	1890
WAS0077817	Cram et al	Marietta	Single Dwelling	1900
WAS0077917	Cram et al	Marietta	Single Dwelling	1929
WAS0078017	Robert Jaeger House	Marietta	Single Dwelling	1910
WAS0078117	Cram House/J Weeks House	Marietta	Single Dwelling	1900
WAS0078217	Robert Rudolph	Marietta	Single Dwelling	1900
WAS0078317		Marietta	Single Dwelling	1920
WAS0078417	Pearl Thrasher House	Marietta	Single Dwelling/Carriage House/Garage	1880
WAS0078517		Marietta	Single Dwelling/Carriage House/Garage	1920
WAS0078617		Marietta	Single Dwelling	1874
WAS0078717	Farm (Windy Point)	Marietta	Single Dwelling/Carriage House/Garage	1880
WAS0078817	Graham Farm	Marietta	Single Dwelling/Carriage House/Garage	1915
WAS0078917	Graham Farm	Marietta	Carriage House/Garage	1915
WAS0079017	Millgate Farm	Marietta	Single Dwelling	1880
WAS0079117	Millgate Farm Barn	Marietta	Single Dwelling	1920
WAS0079217	Carl Boughton Farm	Marietta	Single Dwelling/Carriage House/Garage	1915

OHI Number	Resource Name	Location	Resource Type	Date
WAS0079317	C & N O'Brien House	Marietta	Single Dwelling/Carriage House/Garage	1930
WAS0079417	C & N O'Brien Barn	Marietta	Single Dwelling/Carriage House/Garage	1920
WAS0079517	Charles & Norma O'Brien	Marietta	Single Dwelling/Carriage House/Garage	1900
WAS0079617	Alfa Ralston	Marietta	Carriage House/Garage	1900
WAS0079717	Alfa Ralston	Marietta	Single Dwelling	1900
WAS0079817	Ralston	Marietta	Single Dwelling/Carriage House/Garage	1937
WAS0079917	Ralston	Marietta	Single Dwelling	1880
WAS0080017	Ralston	Marietta	Single Dwelling/Carriage House/Garage	1920
WAS0080117	Morris Chalfant	Marietta	Single Dwelling	1910
WAS0080217	Bartlett House	Marietta	Single Dwelling	1920
WAS0080317	Foster House	Marietta	Single Dwelling/Carriage House/Garage	1910
WAS0080417	Joyce Cassidy House	Marietta	Single Dwelling/Carriage House/Garage	1880
WAS0080517		Marietta	Single Dwelling/Carriage House/Garage	1920
WAS0080617	CD Gates House	Marietta	Single Dwelling/Carriage House/Garage	1937
WAS0080717	G C Stewart House	Marietta	Single Dwelling/Carriage House/Garage	1925
WAS0080817	Bob Davis House	Marietta	Single Dwelling/Secondary Structure (Residential)	1910
WAS0080917		Marietta	Single Dwelling/Carriage House/Garage	1890
WAS0081117	Carol Povlick House	Marietta	Single Dwelling/Carriage House/Garage	1900
WAS0081217	Walter Hallock House	Marietta	Single Dwelling	1920
WAS0081317	Anna Heiney House	Marietta	Single Dwelling	1920
WAS0081517	Bruce Repert House	Marietta	Single Dwelling	1920
WAS0082509		Devola	Single Dwelling	1860
WAS0082609	John & Sandy Bartmass House	Oak Grove	Single Dwelling	1870
WAS0106309	Viola Frederick House	Muskingum Township	Single Dwelling/Agricultural Outbuildings	1870
WAS0106817	Arthur Jones House	Marietta	Single Dwelling	1935
WAS0106917	Gerald Smith House	Marietta	Single Dwelling	1935
WAS0107017	Keith & Marilyn Brum House	Marietta	Single Dwelling/Agricultural Outbuildings	1920

OHI Number	Resource Name	Location	Resource Type	Date
WAS0107117	Roy McBurney House	Marietta	Single Dwelling	1900
WAS0109217	Richard Tuttle House	Marietta	Single Dwelling	1935
WAS0109317	Richard Tuttle Garage	Marietta	Single Dwelling	1920
WAS0109417	Lois Johnson House	Marietta	Single Dwelling	1920
WAS0111209	Thomas Sileg House	Oak Grove	Single Dwelling	1920
WAS0112509	Jane Kichelde House	Unionville	Single Dwelling/Agricultural Outbuildings	1910
WAS0112609		Devola	Carriage House/Garage	1910
WAS0112709	Pletro & Martha Muscart House	Oak Grove	Single Dwelling	1900
WAS0115109	Nancy Strecker House	Oak Grove	Single Dwelling	1890
WAS0115709	Nancy Strecker Garage	Muskingum Township	Single Dwelling/Agricultural Outbuildings	1900
WAS0116409	Harry E Hall	Devola	Single Dwelling	1910
WAS0116509	Ruth Morgan House	Devola	Single Dwelling	1915
WAS0116609	Lewis & George Cook Property	Devola	Social/Civic	1915
WAS0154917	Lewis & George Cook Property	Marietta	Single Dwelling/Carriage House/Garage	1900
WAS0161817		Marietta	Single Dwelling	1920
WAS0161917	Lewis & George Cook Property	Rathbone	Single Dwelling	1930
WAS0162017	Clatterbuck House	Marietta	Single Dwelling	1920
WAS0168617	Roy Pierpooint House	Marietta	Single Dwelling	1890
WAS0171017	Lewis & George Cook Property	Marietta	Single Dwelling	1930
WAS0174117	Shamouns House	Marietta	Single Dwelling	1920
WAS0175617	Harry C Schimmel House	Marietta	Single Dwelling	1900
WAS0180617	Miller House	Marietta	Single Dwelling	1920
WAS0180717	D Hesson House	Marietta	Single Dwelling	1920
WAS0180817	Bruce Henthorn House	Marietta	Service Station	1920
WAS0180917	Clara Morrison House	Marietta	Single Dwelling	1900
WAS0181017	Catherine Remley House	Marietta	Single Dwelling	1900
WAS0181117	Claude & Hazel Martin	Marietta	Single Dwelling	1930
WAS0181217	Clark Property	Marietta	Single Dwelling	1920
WAS0181317	Fred Curtis House	Marietta	Single Dwelling	1920
WAS0181417		Marietta	Single Dwelling	1900
WAS0181517	Biedel House	Marietta	Single Dwelling	1920
WAS0181617	Stacey Farm Inc	Marietta	Single Dwelling	1934

OHI Number	Resource Name	Location	Resource Type	Date
WAS0186617	Mary Wharton House	Marietta	Single Dwelling/Carriage House/Garage	1910
WAS0186717	Janine Eddy House	Marietta	Single Dwelling	1920
WAS0186817	Scott Gugler House	Marietta	Single Dwelling	1920
WAS0187017	Barry Thrift House	Marietta	Single Dwelling	1929
WAS0196617	Jerry Montgomery	Marietta	Single Dwelling	1930
WAS0242517	Margaret E Young House	Marietta	Single Dwelling	1906
WAS0247509	Lewis & George Cook Property	Devola	Single Dwelling	1910
WAS0247609	Lewis & George Cook Property	Muskingum Township	Single Dwelling	1920
WAS0275817	George Delph House	Marietta	Single Dwelling	1940
WAS0275917	Rick Baker House	Marietta	Single Dwelling/Carriage House/Garage	1880
WAS0276017	Elizabeth Hoff House	Marietta	Single Dwelling	1890
WAS0276117	Lewis & George Cook Property	Marietta	Single Dwelling/Agricultural Outbuildings	1920
WAS0286217	Lewis & George Cook Property	Marietta	Single Dwelling	1920
WAS0286609	Sam & Joan McMannes House	Oak Grove	Single Dwelling/Agricultural Outbuildings	1840
WAS0288617	Lewis & George Cook Property	Marietta	Single Dwelling	1926
WAS0290709	S Belville House	Unionville	Single Dwelling/Carriage House/Garage	1900

2.3 Ohio Archaeological Inventory

A total of 37 archaeological sites have been inventoried within the study area (Table 2). This includes 27 prehistoric sites, six historic sites, and four sites with both prehistoric and historic components. Of the prehistoric sites, 25 have no temporal affiliation, one is a Late Archaic site and one is a Late Woodland through Late Prehistoric site. The previously inventoried historic sites span the late eighteenth century through the twentieth century. The multiple component sites include three sites with unknown temporal affiliations, and one site with Late Archaic through Late Prehistoric and historic components. The previously inventoried sites are concentrated on low terraces along the Muskingum River, to the east of the Project area, and along Second Creek, north of the Project area. None of these sites is within or adjacent to the current Project area.

Table 2. Previously Inventoried OAI-Listed Resources within the Study Area.

OAI Number	Cultural Affiliation	Site Type
33WN0274	Prehistoric: Unknown Affiliation	Unknown
33WN0275	Prehistoric: Unknown Affiliation	Unknown
33WN0277	Prehistoric: Unknown Affiliation	Unknown
33WN0279	Prehistoric: Unknown Affiliation	Unknown

OAI Number	Cultural Affiliation	Site Type
33WN0280	Prehistoric: Unknown Affiliation	Unknown
33WN0281	Prehistoric: Unknown Affiliation	Unknown
33WN0282	Prehistoric: Unknown Affiliation	Unknown
33WN0283	Prehistoric: Late Archaic, Early Woodland, Middle Woodland, Late Woodland, Late Prehistoric; Historic	Habitation
33WN0285	Historic: 1796-1829, 1830-1849, 1850-1879, 19th Century	Farmstead
33WN0287	Prehistoric: Unknown Affiliation	Unknown
33WN0288	Prehistoric: Unknown Affiliation	Unknown
33WN0289	Prehistoric: Unknown Affiliation	Unknown
33WN0290	Prehistoric: Unknown Affiliation	Unknown
33WN0291	Prehistoric: Unknown Affiliation	Unknown
33WN0294	Prehistoric: Late Archaic	Unknown
33WN0295	Prehistoric: Unknown Affiliation; Historic	Unknown
33WN0296	Prehistoric: Unknown Affiliation	Unknown
33WN0297	Prehistoric: Unknown Affiliation	Unknown
33WN0298	Prehistoric: Unknown Affiliation	Unknown
33WN0299	Prehistoric: Unknown Affiliation	Unknown
33WN0300	Prehistoric: Unknown Affiliation	Unknown
33WN0301	Prehistoric: Unknown Affiliation; Historic	Unknown
33WN0302	Historic; 20th Century	Habitation
33WN0308	Prehistoric: Unknown Affiliation	Unknown
33WN0309	Historic: 1850-1879, 1880-1899, 1900-1929, 19th Century, 20th Century	Habitation
33WN0310	Prehistoric: Unknown Affiliation	Unknown
33WN0311	Prehistoric: Unknown Affiliation	Unknown
33WN0312	Prehistoric: Unknown Affiliation	Unknown
33WN0313	Prehistoric: Unknown Affiliation; Historic	Unknown
33WN0314	Historic: Unspecified	Habitation
33WN0315	Prehistoric: Unknown Affiliation	Unknown
33WN0316	Historic: Unspecified	Habitation
33WN0318	Prehistoric: Late Woodland, Late Prehistoric	Unknown
33WN0319	Prehistoric: Unknown Affiliation	Unknown
33WN0321	Prehistoric: Unknown Affiliation	Unknown
33WN0322	Prehistoric: Unknown Affiliation	Unknown
33WN0330	Historic: Unspecified	Artifact Scatter

2.4 Ohio Genealogical Society Cemetery Files

There is one OGS-listed cemetery within the study area (see Figure 3). The location of “Unidentified #1” cemetery (OGS ID 15198), is described as “just south of the northernmost portion of Cisler Drive, about halfway between [the] radio tower/armory and North Hills School.” The cemetery is situated approximately 1,445 meters (4,739 feet) south of the current Project.

In addition, the Washington County Children’s Home Cemetery is not included in the OGS files; however, it is an OHI-listed resource, located approximately 177 meters (580 feet) north of the current Project.

2.5 Cultural Resources Investigations

Eight previous cultural resources investigations were completed within 1.6 kilometers (one mile) of the Project area (Figure 3). Seven of the eight previous investigations have occurred north and west of the Project area DeRegnaucourt 1994; Mustain 1994, 1996; Orr and Gasbarro 1996; Sprague and Mott 1995; Weller and Haines 2005; and Weller 2017), along Second Creek and the Muskingum River, as well as on the west bank of the river in Oak Grove; however, one previous investigation, for the Bell Ridge to Devola 138 kV Transmission Line Project, occurred within the current Project area (Spurgeon and Favret 2018). In addition, one Phase II investigation of multiple archaeological sites was conducted for the North Muskingum River Crossing project (Mustain et al. 1996).

2.5.1 Previous Investigations within the Project Area

In 2017, CH2M Hill (CH2M, now part of Jacobs) conducted a Phase I Archaeological Reconnaissance survey for the Bell Ridge - Devola 138 kV Transmission Line Project in Aurelius, Salem, Adams, and Muskingum Townships, Washington County (Spurgeon and Favret 2018. This survey examined the entire corridor for cultural resources. Large portions of the APE were subjected to pedestrian survey due to excessive slope. Two historic archaeological sites were identified during the Phase I survey: 33WN50s and 33WN503. Neither site contained subsurface deposits, nor are they eligible for inclusion on the NRHP. CH2M received concurrence with its recommendations from the OHPO in a letter dated February 12, 2018 (Horrocks 2018).

2.5.2 Previous Phase I Investigations within the Study Area

In 1994, a Phase I literature review and reconnaissance survey was conducted for the Highland Ridge Water and Sewer Association of Marietta, Ohio, and SIECO, Inc. for the multiple water line project in Washington County (DeRegnaucourt 1994). The investigation identified two archaeological sites: 33WN330 and 33WN331 (DeRegnaucourt 1994). Site 33WN330 is a small diffuse historic artifact scatter, and site 33WN331 consists of two small debitage and one unidentified lithic fragment (DeRegnaucourt 1994). These sites are not eligible for listing on the NRHP, and no further work was recommended (DeRegnaucourt 1994)

In 1994, ASC conducted a literature review and reconnaissance survey of the North Muskingum Crossing Bridge, in Muskingum Township, Washington County (Mustain et al 1994). The archaeological survey identified 49 sites, including 15 prehistoric lithic scatters, 14 prehistoric lithic isolated find spots, three prehistoric lithic scatter/historic scatters, two prehistoric lithic and ceramic scatter/historic scatter sites, two house sites, two developing springs, and one prehistoric lithic find spot/historic scatter site (Mustain et al 1994). Of these, four sites (33WN288, 33WN290, 33WN295, and 33WN313) were recommended as potentially eligible for listing in the NRHP (Mustain et al 1994).

In 1995, Stilson & Associates (Stilson) completed archaeological testing for an alternative corridor for the North Muskingum Crossing Bridge Project (Sprague and Mott 1995). Stilson excavated 32 trenches, outside of site boundaries defined by Mustain et al. 1994, to redefine the limits of sites 33WN274, 33WN275, 33WN276, 33WN282, 33WN284, 33WN285, and 33WN309. Following the results of the additional testing, no additional testing and no modifications of the previous recommendations were made (Sprague and Mott 1995).

In 1996, the Ohio Department of Transportation - Office of Environmental Services (ODOT-OES) conducted a cultural resources survey and evaluation for proposed roadway improvements in Muskingum Township (Orr and Gasbarro 1996). The survey did not identify any archaeological sites, and no further archaeological investigations were recommended. Seven architectural and historical resources were identified, none of which is eligible for inclusion in the NRHP (Orr and Gasbarro 1996).

In 2005, Weller & Associates, Inc. conducted a Phase I a Phase I archaeological investigation for the Highland Ridge Water Association Emergency Interconnect and Waterline Extensions project in Lawrence, Muskingum, and Salem Townships, Washington County. The archaeological field investigation did not identify any archaeological sites, and no additional work was recommended (Weller and Haines 2005).

Weller & Associates, Inc. conducted a Phase I cultural resources management investigation for the Devola Multiuse Trail in Muskingum Township (Weller 2017). The project area was found to contain extensive disturbance, and no cultural resources were identified during the investigation. No additional work was recommended (Weller 2017).

In December 1994 and May 1995, ASC conducted a Phase II NRHP eligibility assessment survey for Dodson-Stilson, Inc., of archaeological sites 33WN283, 33WN284, the prehistoric component of 33WN285 and 33WN294, the historic components of 33WN285 and 33WN309, and architectural resource WAS-753-9 (Mustain et al 1996). As a result of the evaluation, site 33WN294 was delineated to have overlapping Late Archaic camp sites and determined eligible to meet Criterion D of the NRHP (Mustain et al 1996). A Phase III data recovery was recommended for this site. Site 33WN283 includes a small Late Archaic component and extensive Late Woodland component. This site appears to be several adjacent or overlapping habitation areas, likely associated with the Late Woodland Newton culture (Mustain et al 1996). Site 33WN283 was determined eligible for the NRHP under Criterion D. Site 33WN285 consists of a historic house feature that may be eligible for inclusion in the NRHP (Mustain et al 1996). A Phase III data recovery was recommended for this site (Mustain et al 1996). Site 33WN309 is also a historic house site dating from the mid-nineteenth through mid-twentieth century. This site is also eligible for inclusion on the NRHP under Criterion D (Mustain et al 1996).

Table 3. Previous Cultural Resources Investigations within the Study Area.

Survey Number	Phase	Author(s)	Year	Title
13433	II	Mustain et al.	1996	Phase II Assessment Survey of 33WN283, 33WN285, 33WN294, 33WN309, and Was-735-9 for the Proposed North Muskingum River Crossing Bridge Project in Muskingum Township, Washington Coutny, Ohio.
13582	I	Orr and Gasbarro	1996	A Cultural Resources Survey and Evaluation of the Was-821-0.75 (PID 10496) Roadway Improvements Project, Muskingum Township, Washington County, Ohio
13747	I	Mustain et al.	1994	Literature Review and Reconnaissance Survey of the North Muskingum River Crossing Bridge in Muskingum Township, Washington County, Ohio
13750	I	Sprague and Mott	1994	Addendum to Literature Review and Reconnaissance Survey of the North Muskingum River Crossing Bridge in Muskingum Township, Washington County, Ohio
15015	I	DeRegnaucourt	1994	A Phase I Archaeological Reconnaissance and Literature Search of the Highland Ridge Water and Sewer Association Water Extension Lines near Marietta in Washington County, Ohio

Survey Number	Phase	Author(s)	Year	Title
16589	I	Weller and Haines	2005	A Phase I Cultural Resource Management Review for Highland Ridge Water Association Emergency Interconnect and Waterline Extension in Lawrence, Muskingum, and Salem Townships, Washington County, Ohio.
20481	I	Weller	2017	Phase I Cultural Resource Management Investigations for the Approximately 1.8 km (1.1 mi) Long Devola Multiuse Trail in Muskingum Township, Washington County, Ohio
N/A	I	Spurgeon and Favret	2018	Phase I Archaeological Reconnaissance for American Electric Power Bell Ridge to Devola 138 kV Transmission Line Project in Aurelius, Salem, Adams, and Muskingum Townships, Washington County, Ohio

2.6 Historic Maps and Atlases

In addition to a review of previously recorded cultural resources, Jacobs also reviewed available online historic mapping. In Washington County, historic atlases from 1858 (Gardner) and 1875 (Titus and Simon) were examined, as was the Mills 1914 Archaeological Atlas of Ohio.

2.6.1 Washington County

The 1858 Gardner atlas shows the established city of Marietta and the city of Lowell to the north along the Muskingum River. The western portion of modern-day Marietta, on the opposite bank of the Muskingum River, is depicted as Harmar, before it was incorporated into Marietta (Gardner 1858). The small town of Devola to the north of Marietta had not yet been developed in 1858; however, the area appears to have been parceled for future development. The area within Union, Fearing, and Lawrence townships is depicted as predominately rural, with dispersed farmsteads and residences located throughout (Gardner 1858). Little development is seen outside of the city center at Marietta. Review of the 1875 Titus and Simon atlas maps show that the area was largely unchanged from 1858 (Titus and Simon 1875). These maps again present the area as largely rural and agrarian outside of the town centers at Marietta. However, by 1875, the city of Marietta had developed and expanded to the north, and the development of the M. P. & C Railroad can be seen.

2.6.2 Mills Archaeological Atlas of Ohio

In addition to the historic atlases above, the 1914 archaeological map “Archaeological Atlas of Ohio …” was also consulted (Mills 1914). Similar to other maps of its time (e.g., Guernsey 1932), this map depicts archaeological resources at a county-wide scale and is the result of early survey work conducted by the Ohio State Museum. The Mills map provides an overview of archaeological resources across the county, including mounds, earthwork enclosures, village sites, Native American trails, burials, cemeteries, stone graves, effigy mounds, petroglyphs, flint quarries, caches, and rock shelters (Mills 1914).

In Washington County, Mills’ map does not depict any archaeological resources within the current Project area; however, there is one burial mound site within Township T3N, Range R8W, and Section S25. This location appears near the end of the Bell Ridge to Devola transmission line alignment, in the vicinity of the Devola substation, east of the Muskingum River. Although the scale and detail of the Mills atlas is limited, the mound location appears to be east of the Project area. In addition, this resource was not located during the previous Bell Ridge to Devola Phase I archaeological investigations (see Spurgeon and Favret 2018).

Several other noteworthy features beyond the Project alignment but within Washington County are included in Mills’ atlas. For instance, three additional burial mound sites are depicted south of the Project, north of Marietta. Further, the Marietta Earthworks are depicted within the confines of the city of Marietta. These complex earthworks are associated with the Hopewell Culture, and once consisted of two square enclosures of 50 and 27 acres, several rectangular flat-topped mounds, a large conical mound surrounded by a ditch, and a set of earthen walls extending from the largest square enclosure to the

Muskingum River (Mills 1914). The city of Marietta was developed on top of this earthwork complex; however, remnants of the large conical mound can be seen today in Mound Cemetery. Mills' map also depicts two Native America trails to the west of the Muskingum River. These are the Cuyahoga-Muskingum Trail, and "Trail No. 13" (Mills 1914). Finally, a Native American village site name "Kosh-kosh-kung" is shown in far eastern Washington County, outside of the Project area.

3. Summary and Conclusions

This document has presented the results of the records review for the Devola - Gorsuch 138 kV Transmission Line Project. The Project includes the construction of a new 600-foot (183-meter) long 138 kV transmission line connecting the existing Devola - Riverview Transmission Line to the Devola Substations in Washington County, Ohio.

Considering that the current Project is flanked by two existing transmission lines that have already impacted the viewshed of the immediate area, the APE considered only potential Project direct impacts to cultural resources. For the Project, the APE was defined as the land proposed for ground disturbance, which includes the entirety of the proposed construction corridor centered on the preferred alignment. The APE consists of excessively sloped terrain, with disturbance from the existing transmission lines at both ends of the alignment.

The records review identified 191 previously inventoried cultural resources, including one NRHP-listed historic district, 153 OHI-listed resources, 37 OAI-listed archaeological sites, and one OGS-listed cemetery within 1.6 kilometers (one mile) of the Project. None of the previously recorded resources is within or adjacent to the Project area. In addition, eight previous investigations have been conducted within the study area, including the 2017 CH2M Phase I reconnaissance survey for the Bell Ridge to Devola 138 kV Transmission Line Project, which intersects the current project area at the eastern end of the alignment.

Ultimately, the records review indicated that while a number of cultural resources have been identified in more favorable landforms in the vicinity of the Project area, due to the excessive slope within the Project alignment, the likelihood that cultural resources that may meet eligibility criteria for inclusion in the NRHP is low. Therefore, Jacobs recommends no additional archaeological work within the project area. Should AEP Ohio Transco encounter unanticipated cultural resources during construction, work will stop, and a qualified cultural resources professional will examine the discovery to determine the need for additional cultural resources investigations. The OHPO will be notified of the discovery and consulted regarding the nature and extent of work required.

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OHIO HISTORY CONNECTION

In reply, refer to
2018-WAS-40808

February 12, 2018

Ms. Amy C. Favret
CH2M Hill Engineers, Inc.
400 E. Business Way, Suite 400
Cincinnati, OH 45241
amy.favret@ch2m.com

RE: Bell Ridge to Devola 138 kV Transmission Line Project, Lawrence, Fearing, and Muskingum Townships, Washington County, Ohio

Dear Ms. Favret:

This letter is in response to the correspondence received on January 16, 2018, January 29, 2018 and the revised archaeology report received February 8, 2018 regarding the proposed Bell Ridge to Devola 138 kV Transmission Line Project, Lawrence, Fearing, and Muskingum Townships, Washington County, Ohio. We appreciate the opportunity to comment on this project. The comments of the Ohio State Historic Preservation Office (SHPO) are made pursuant to Section 149.53 of the Ohio Revised Code and the Ohio Power Siting Board rules for siting this project (OAC 4906-4). The comments of the Ohio SHPO are also submitted in accordance with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. 306108 [36 CFR 800]).

The following comments pertain to the *Phase I Archaeological Reconnaissance for American Electric Power Bell Ridge to Devola 138 kV Transmission Line Project in Lawrence, Fearing and Muskingum Townships, Washington County, Ohio* by CH2M (2018).

A literature review, visual inspection, pedestrian survey, and shovel test unit excavation was completed as part of the investigations. No previously inventoried Ohio Archaeological Inventory (OAI) sites are located within the project area. Two (2) new OAI sites were identified during the survey. OAI#33WN0502 is a historic artifact site scatter, likely a dumping location associated with the original house on the property, built in the 1930's, which is no longer standing. OAI#33WN0503 is a historic artifact site scatter and partial brick wall pared with concrete. The sites are not recommended as eligible for listing in the NRHP. Based on the information provided, we agree the archaeological sites are not eligible for listing in the NRHP and no further archaeological work is necessary.

Please complete your associated site inventory as soon as possible. Project associated inventory should be completed and submitted concurrent with submission of your survey documentation for our comments. Following IForm submission procedure, please send a notification to the survey manager (archsurvey@ohiohistory.org, or directly at beberhard@ohiohistory.org) so that the manager is aware your inventory is prepared, complete, and ready for review.

The following comments pertain to the *Architectural and Historic Resources Report: AEP Ohio Transco Bell Ridge to Devola 138 kV Transmission Line Project, Lawrence, Fearing and Muskingum Townships, Washington County, Ohio* by CH2M (2018).

The investigations included a background literature review and systematic survey of properties fifty years of age or older that are situated within 1,000' on either side of the proposed centerline. Fourteen architectural and historical resources were identified within the APE. CH2M recommends that none of

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these properties are eligible for listing in the National Register of Historic Places (NRHP) due to a lack of architectural and/or historic significance, and lack of integrity. Our office agrees with CH2M's recommendations regarding eligibility.

The results of the architectural investigation identified no historic properties located within the APE that exhibit potential significance for inclusion in the National Register of Historic Places. Therefore, we agree that the project as proposed will have no effect on historic properties.

Based on the information provided, we agree the project will not affect historic properties. No further coordination with this office is necessary, unless the project changes or unless new or additional historic properties are discovered during implementation of this project. In such a situation, this office should be contacted.

If you have any questions, please contact me at (614) 298-2022, or by e-mail at khorrocks@ohiohistory.org. Thank you for your cooperation.

Sincerely,

Krista Horrocks, Project Reviews Manager
Resource Protection and Review

cc: Ron Howard, AEP (rmhoward@aep.com)

RPR Serial No: 1072031, 1072503

Appendix D Ecological Resources Inventory Report

Ecological Resources Inventory Report

American Electric Power

Proposed Devola-Gorsuch 138 kV Transmission Line Project

Washington County, Ohio

Prepared for

October 2018

JACOBS

400 E Business Way, Suite 400
Cincinnati, OH 45241

Contents

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Acronyms and Abbreviations

AEP	American Electric Power
CWA	Clean Water Act
DBH	Diameter at breast height
ESA	Environmental study area
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
ID	Identification
Jacobs	Jacobs Engineering Group, Inc.
kV	Kilovolt
NHD	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OAC	Ohio Administrative Code
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PHWH	Primary Headwater Habitat
Project	Proposed Devola-Gorsuch 138 kV Transmission Line Project
ROW	Right-of-way
TNW	Traditionally Navigable Water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 Introduction

This Ecological Resources Inventory Report summarizes the results of the wetland and waterbody delineation conducted on January 23, 2018 and October 10, 2018 in Washington County, Ohio by Jacobs Engineering Group, Inc. (Jacobs) for the American Electric Power (AEP) Proposed Devola-Gorsuch 138 kV Transmission Line Project (Project).

AEP is proposing to construct a new segment of 138 kV electric transmission line (0.1-mile length) that will connect the future Devola Substation and the existing Devola – Riverview 138 kV transmission line to the west. This report covers the approximately 6.5-acre environmental study area (ESA) immediately surrounding the proposed transmission line connection.

- Figure 1 provides an overview map of the study area based on a U.S. Geological Survey (USGS) topographic map.
- Figures 2 provides the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) mapped soil units, and Table 3-1 lists the soils types identified within the study area.
- Figures 3 provides National Wetland Inventory (NWI) wetland information and National Hydrology Dataset (NHD) stream information identified within the study area.
- Figure 4 provides the field delineated wetlands and waterbodies identified within the study area.
- Appendix A contains Ohio Environmental Protection Agency Primary Headwater Habitat Evaluation Index (HHEI) forms.
- Appendix B contains United States Army Corps of Engineers Wetland/Upland Determination Forms.
- Appendix C contains Ohio Environmental Protection Agency Ohio Rapid Assessment Method (ORAM) Forms.
- Representative photo documentation is provided in Appendix D.
- Appendix E contains threatened and endangered species consultation letter responses from the Ohio Department of Natural Resources (ODNR) and United States Fish and Wildlife Service (USFWS).

2 Background Information

This section describes the Project environmental study corridor (ESA) and methodology used during the wetland and waterbody delineation field surveys.

2.1 Environmental Study Area

The proposed transmission line to be constructed extends approximately 0.1 mile west of the future Devola Substation, near the community of Devola, Ohio. The ESA covers approximately 6.5 acres area between the Devola Substation and the nearest existing Devola - Riverview 138 kV transmission line structures to the west. The right-of-way (ROW) proposed for this Project is 100-feet wide.

The Project is located within the Marietta Plateau region of the Appalachian Plateaus physiographic province (ODNR, 1998). The Marietta Plateau region is characterized by high relief and elevations between 515 and 1,400 feet above sea level. Pennsylvanian-age Upper Conemaugh Group through Permian-age Dunkard Group cyclic sequences of red and gray shales, siltstones, sandstones, limestone, and coal characterize the geology of the area. Pleistocene-age Minford clay, red and brown silty clay loam colluvium, and landslide deposits are also notable geologic characteristics of the area (ODNR, 1998).

Review of the USGS 7.5-minute topographic map of the area (USGS, 1975) indicates the ESA has a rolling hill topography ranging from 680 to 870 feet above sea level. The future Devola Substation site is located on a ridge top and the proposed transmission line connection will meet a slightly lower elevation ridge where the existing transmission line structures reside.

Land use and vegetation communities observed within the ESA includes existing utility ROW, scrub-shrub, and upland forest, in addition to the identified waterbodies.

2.1.1 Annual Precipitation

Historic monthly rainfall data for Marietta, Ohio from the National Oceanic and Atmospheric Administration (NOAA) was reviewed prior to surveys. Precipitation recorded in Marietta, Ohio, was above normal for November and below normal for December 2017 leading up to the January 2018 surveys. Precipitation was normal in August and above normal in September leading up to the October 2018 surveys (Table 2-1; NOAA, 2017-2018). The total rainfall for this period leading up to survey was approximately 4.4 inches greater than the average. This information was taken into consideration during survey.

Table 2-1. Precipitation in Marietta, Ohio
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

2017/2018 Precipitation Data	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Total
Marietta Monthly Sum [1, 3]	4.68	1.77	4.07	7.59	3.86	5.34	M7.32	9.44	2.77	4.64	7.46	51.62
Marietta Normal Precip. [2, 3]	2.26-3.69	2.58-3.92	2.10-3.62	1.96-3.49	2.73-4.42	2.28-3.71	3.00-4.82	2.83-5.45	3.33-5.17	2.74-4.87	2.35-4.07	28.16-47.23
Monthly climatic condition	Above Normal	Below Normal	Above Normal	Above Normal	Normal	Above Normal	Above Normal	Above Normal	Below Normal	Normal	Above Normal	Above Normal

[1]NOAA Monthly Weather Summary 2017-2018 (Marietta, OH)

[2] Historic precipitation is based on measurements from 1971 to 2000.

[3]Displayed in inches

[M]Missing Data

2.1.2 Drainage Basins

The ESA is within the Muskingum Watershed 8-digit Hydrologic Unit Code (HUC 05040004) and crosses one 12-digit HUC (05040041204) Devola Run-Muskingum River (USEPA, 2017).

2.1.3 Traditional Navigable Waters

The U.S. Environmental Protection Agency (USEPA) and USACE assert jurisdiction over "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide" (USACE and USEPA, 2008). The closest traditional navigable waters (TNW) and Section 10 stream to the Project area is the Muskingum River (USACE, 2009 and 2016). The five streams within the ESA are unnamed tributaries to the Muskingum River.

3 Wetland and Waterbody Delineation

3.1 Desktop Review

Prior to conducting the field investigations, Jacobs reviewed the following resources to identify the potential for wetlands or waterbodies within the ESA:

- Aerial photo-based maps (Google, 2016)
- USGS topographic maps (USGS, 1975)
- NRCS Web Soil Survey (NRCS, 2016)
- NWI maps (USFWS, 2015)
- National Hydrography Dataset (NHD) (USGS, 2015)

According to the NRCS soil survey of Washington County (NRCS, 2016), three soil map units exist within the ESA. None of the soil map units are listed as hydric or predominantly hydric or predominately non-hydric; all three of the soil map units are listed as not hydric (Figure 2; Table 3-1). NRCS data indicate that not hydric soils comprise approximately 6.5 acres (100 percent) of the ESA.

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

The NWI database (USFWS, 2015) identifies the type of wetland or open water present at a location using the U.S. Fish and Wildlife Service (USFWS) classification system (Cowardin et al., 1979). The NWI data indicates that no NWI mapped features are located within the ESA (USFWS, 2015).

Table 3-1. Hydric Soil Ratings Summary
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Abbreviation	Soil Map Unit Name	Hydric Classification	Acres within Area of Delineation	Percent within Area of Delineation
DSG	Dekalb and Gilpin stony soils, 25 to 70 percent slopes	Not Hydric	0.10	2%
UpD	Upshur silty clay loam, 12 to 18 percent slopes	Not Hydric	0.83	13%
UsF	Upshur-Gilpin complex, 25 to 35 percent slopes	Not Hydric	2.02	31%
VaF	Vandalia silty clay loam, 25 to 35 percent slopes	Not Hydric	3.56	55%
Grand Total			6.51	

Source: Soil Survey Staff, NRCS, USDA. 2016. Soil Survey Geographic (SSURGO) Database for Ohio.

3.2 Field Survey Methodology

Wetland boundaries, if present, were field-delineated according to Section 404 of the Clean Water Act (CWA) and the routine onsite methodology described in the Technical Report Y-87-1 *Corps of Engineers' Wetlands Delineation Manual* and subsequent guidance documents (USACE, 1987) and according to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* (USACE, 2012). Wetland delineation data if present was recorded on the USACE Regional Supplement wetland determination data forms.

Representative upland data points were recorded during the wetland delineation to determine the presence/absence of wetlands and/or document upland conditions within the ESA. These data points were determined not to be within wetlands because they did not have positive indicators of one or more of the three wetland criteria: hydrophytic vegetation, wetland hydrology, and hydric soils.

Jurisdictional streams were identified as those waters that possessed a defined bed and bank and OHWM indicators and lacked a dominance of upland vegetation in the channel. For these waterbodies, the ordinary high-water mark (OHWM) was used as the jurisdictional boundary.

The outer boundaries of each wetland and waterbody within the ESA were delineated and recorded using handheld global positioning system (GPS) units. As wetland and waterbody features were collected, they were each assigned a unique feature identification (ID). Each feature collected received a unique feature identifier of DLLNNN, as outlined below. When data point features were associated with wetlands or their associated upland data points, comments were recorded on the data sheets.

D = Data Type (W for Wetland; S for Stream; P for Pond; and DP for Data Point)

LL = Initials of Field Survey Lead

NNN = Feature Number (for each feature of a specific ID combination)

According to recent guidance from the USEPA and USACE, wetlands that are adjacent to or have a significant nexus to TNWs are regulated under Sections 401 and 404 of the CWA (USEPA and USACE, 2008). A significant nexus must meet criteria that indicate the wetland provides biological, physical, or chemical benefits to the TNW. A significant nexus includes consideration of both hydrologic and ecologic factors. The closest downstream TNW to the ESA is the Muskingum River, which flows approximately 0.6 mile west of the ESA. All the streams in the ESA are tributaries to the Muskingum River.

The OEPA also requires classification of streams and wetlands, if present, according to OEPA methods in order to establish the "quality" of these waterbodies in accordance with the Ohio Water Quality Standards (Ohio Administrative Code [OAC] Section 3745, 2003). The standards dictate the level of permitting and mitigation required for impacts to the wetlands. Accordingly, each identified wetland was evaluated in accordance with the ORAM, developed by OEPA (Mack, 2001). Categorization was conducted in accordance with the latest quantitative score calibration (OEPA, 2000).

The streams identified within the ESA have drainage area smaller than one square mile. In accordance with the Ohio Water Quality Standards, these streams were evaluated using the OEPA Headwater Habitat Evaluation Index (HHEI; OEPA, 2012). The HHEI classifies streams based on habitat characteristics. Utilizing the HHEI scores and Jacobs' professional judgment, the headwater streams were classified into one of three categories:

- Ephemeral (Primary Headwater Habitat [PHWH] Class I)
- Intermittent (PHWH Class II/III)
- Perennial (PHWH Class III)

4 Field Survey Results

Five streams and one wetland were delineated within the ESA. These features are displayed on Figure 4.

4.1 Wetland and Waterbody Summary

Summary information for the wetlands and waterbodies within the ESA are provided in Tables 4-1 and Table 4-2 respectively. The length (feet) of the streams and acreages of the wetland within the ESA are included. All of the identified streams join together with stream SBR001 and continue off site to the southwest prior to joining with downstream tributaries of the Muskingum River.

4.1.1 Wetlands

One wetland totaling 0.02 acre was delineated within the ESA, as depicted in Figure 4. The delineated wetland was identified as a PEM wetland. Detailed information for the delineated wetland within ESA is provided in Table 4-1.

Table 4-1: Detailed Delineated Wetland Table

Proposed Devola-Gorsuch 138kV Transmission Line, Washington County, Ohio

Wetland ID	Location		Wetland Type[1]	Area (ac)[2] In ESA	ORAM Score/Category	Jurisdictional Status[3]	Connecting Waterbody
	Latitude	Longitude					
WBR001	39.448200	-81.450500	PEM	0.02	26	Jurisdictional	SBR001

[1]Cowardin et al. 1979.

[2]This acreage only corresponds to the area delineated within the environmental survey area.

[3]Final determination of jurisdictional status lies with the USACE, Louisville District.

Wetland WBR001 appears to be hydrologically connected to surface waters that are tributaries to the Muskingum River, and therefore will likely be considered jurisdictional by the USACE. Completed USACE wetland and upland determination forms are provided in Appendix B. Representative photographs were taken of each wetland during the field survey and are provided in Appendix D.

4.1.2 Wetland ORAM Results

One Category 1 wetland was identified within the ESA. No Category 2 or Category 3 wetlands were identified within the ESA. A completed ORAM form is included in Appendix C.

The delineated wetland, WBR001, was classified as a Category 1 PEM (Palustrine Emergent) wetland. This wetland was classified as a Category 1 wetland based on the ORAM score of 26. Generally, category 1 wetlands score low due to a variety of factors such as small size, intensity of surrounding land use, narrow buffer areas, disturbance to soils and hydrology, the lack of second growth vegetation, and the presence of invasive species.

4.1.3 Waterbodies

A total of five streams, were identified within the ESA. All streams are unnamed tributaries to the Muskingum River. All five streams were determined to have ephemeral flow based on the HHEI scores, field observations, and the USGS topographic maps (Figure 1). All streams appear to have significant nexus with a TNW (the Muskingum River) and are therefore likely to be considered jurisdictional by the USACE. It is noted that the USACE and OEPA make the final determination of significant nexus with a TNW. Completed HHEI forms are provided in Appendix A and representative photographs of the streams are provided in Appendix D.

Table 4-2. Project Study Area Stream Summary

Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Feature ID	Location	Waterbody Name	Flow Regime[1]	12-Digit HUC	Drainage Area (square miles)	Approximate Length Delineated within the Study Area (feet)	RPW or Non-RPW[2]	OEPA Aquatic Life Use Designation[3]	HHEI Score[4]	Preliminary OEPA Stream Designation[5]	401 Water Quality Certification for Nationwide Permit Eligibility[6]	TNW Connection	Brief Description of Stream Condition
SBR001	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	610	Non-RPW	N/A	29	Class I	Ineligible	Muskingum River	stream flows through transmission line ROW
SBR002	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	79	Non-RPW	N/A	24	Class I	Ineligible	Muskingum River	natural channel
SJF100	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	165	Non-RPW	N/A	17	Class I	Ineligible	Muskingum River	natural channel
SJF101	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	197	Non-RPW	N/A	17	Class I	Ineligible	Muskingum River	natural channel
SJF102	Devola-Gorsuch Line Vicinity	UNT Muskingum River	Ephemeral	050400041204	<0.01	155	Non-RPW	N/A	17	Class I	Ineligible	Muskingum River	natural channel

Notes:

[1] Flow regime is defined as perennial, intermittent, or ephemeral. This determination was interpreted using field observations, USGS topographic maps, and the OEPA HHEI, as appropriate.

[2] Intermittent and perennial streams were recorded as RPWs; ephemeral streams were recorded as non-RPWs.

[3] OEPA Aquatic Life Use Designation based on OAC Chapter 3745-1 Water Quality Standards

[4] HHEI narrative rating based on OEPA 2009. The HHEI score was based on site observations and conditions during the wetland and stream delineation.

[5] Primary headwater habitat (PHWH) class for streams with watersheds smaller than 1 square mile is defined based on HHEI scores according to OEPA 2002.

[6] Eligibility based on OEPA Division of Surface Water Stream Eligibility Web Map (2017 Issuance)

Abbreviations:

HHEI	headwater habitat evaluation index	Non-RPW	non-relatively permanent water	TNW	traditional navigable waters
HUC	hydrologic unit code	OEPA	Ohio Environmental Protection Agency	UNT	unnamed tributary
N/A	not applicable	RPW	relatively permanent water		

4.2 Land Use and Habitat Summary

Jacobs field biologists conducted a general habitat survey in conjunction with the wetland and waterbody field surveys during the October 2018 site visit. The ESA comprises early successional forest, existing transmission right-of-way (ROW), and scrub-shrub habitats. Additional details regarding the general habitat observed within the ESA is described below.

The early successional forest is predominantly found along the northern and southern edges of the ESA. Dominant species include white oak (*Quercus alba,* FACU), American beech (*Fagus grandifolia,* FACU*)*, sugar maple (*Acer saccharum,* FACU), Ohio buckeye (*Aesaulus glabra*, FACU) bitternut hickory (*Carya cordiformis*, FACU), and shagbark hickory (*Carya ovata*, FACU).

The scrub-shrub area, which makes up the majority of the ESA is mostly contained within the existing transmission ROW and dominated by shrub species such as multiflora rose (*Rosa multiflora,* FACU), Allegheny blackberry (*Rubus allegheniensis*, FACU), honeysuckle shrub (*Lonicera morrowii,* FACU), and Virginia pine (*Pinus virginiana,* FACU).

5 Protected Species

Jacobs reviewed the USFWS Ohio Ecological Services Office website (USFWS, 2015a) for information concerning which federally-listed species are known to occur, or to potentially occur, in Washington County. In addition, Jacobs submitted an Ohio Natural Heritage Database Request to the ODNR Division of Wildlife (DOW) on August 30, 2017 for information on known occurrences of federally-listed and state-listed species within a one-mile radius of the Devola substation LOD and the identified buffer covers the entire ESA. Separate requests were submitted to the ODNR and USFWS regarding the proposed ESA. A response from the ODNR was received on November 20, 2017, and a response from the USFWS was received on September 11, 2017. Threatened and endangered species coordination responses are provided in Appendix E.

5.1 Federal Agency Coordination Summary

Federally-listed species information is summarized below in Table 5-1. Table 5-1 outlines federally-listed species identified by the USFWS (USFWS, 2016) as occurring, or potentially occurring in the Project ESA in Washington County, Ohio.

Table 5-1. Federally-Listed Species Recorded in Washington County
Federal Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	Federal Status	General Habitat Notes	Recorded Location within Project Vicinity	Potential Habitat in ESA
Mammals				
Indiana bat *Myotis sodalis*	Endangered	Hibernacula = Caves and mines; Maternity and foraging habitat = small stream corridors with well-developed riparian woods and upland forests.	No	Yes
Northern long-eared bat *(Myotis septentrionalis)*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. During late spring and summer, roosts and forages in upland forests.	No	Yes

5.2 State Agency Coordination Summary

State-listed species information is summarized below in Table 5-2. Table 5-2 outlines state-listed species identified by the ODNR (ODNR, 2016) as being located within a one-mile radius of the ESA. Species-specific surveys were not conducted for the state-listed species discussed in Table 5-2. A copy of the protected species comments from ODNR is provided in Appendix E.

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA

State Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Mammals				
Indiana bat *(Myotis sodalis)*	Endangered	Hibernacula = Caves and mines; Maternity and foraging habitat = small stream corridors with well-developed riparian woods and upland forests.	No hibernacula of Indiana bats have been documented in Washington County.	Yes
Black bear *(Ursus americanus)*	Endangered	Thick, forested areas with an abundance of food resources.	No locations reported. Per ODNR, due to mobility of this species it is unlikely to be impacted.	Yes
Fishes				
Blue sucker (Cycleptus elongates)	Endangered	Deep swiftly flowing channels of large rivers. Lower Scioto River to the Ohio River	Yes, within one-mile radius of the ESA.	No
Western banded killifish (Fundulus diaphanous menona)	Endangered	In areas of rooted aquatic vegetation, clear waters, and substrates of clean sand and organic debris. No silt.	Yes, within one-mile radius of the ESA.	No
Northern madtom (Noturus stigmosus)	Endangered	Deep swift riffles of large rivers. Found in and around cobbles and boulders. Muskingum, Scioto, and Little Miami River Drainages.	Yes, within one-mile radius of the ESA.	No
Ohio Lamprey (Ichthyomyson bdellium)	Endangered	Found in clear brooks with fast flowing water with gravel or sand. Slow moving water with soft substrate bottoms in medium to large streams and in large bodies of water.	Yes, within one-mile radius of the ESA.	No
Paddlefish (Polyodon spathula)	Threatened	Found in the Ohio River and its larger tributaries. They live in slow moving pools and backwaters.	Yes, within one-mile radius of the ESA.	No

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA

State Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Mountain madtom (Noturus eleutherus)	Threatened	Found in deep swift riffles of larger rivers. They prefer substrates such as cobbles and boulders.	Yes, within one-mile radius of the ESA.	No
River darter (Percina shumardi)	Threatened	Found in very large rivers with swift currents. They live in areas over a gravel or rocky bottom in depth of 3 feet or more.	Yes, within one-mile radius of the ESA.	No
Channel darter (Percina copelandi)	Threatened	Found in large, course sand or fine gravel bars in large rivers along the shore of Lake Erie.	Yes, within one-mile radius of the ESA.	No
Tippecanoe darter (Etheostoma tippecanoe)	Threatened	Found in medium to large streams and rivers in the Ohio River drainage. They live in riffles or moderate current with substrates of gravel and small cobbles.	Yes, within one-mile radius of the ESA.	No
Freshwater Mussels				
Sheepnose (Plethobasus cyphus)	Endangered	Found in larger rivers and streams where they live in shallow areas with moderate to swift currents. Found in the Ohio River and tributaries	Yes, within one-mile radius of the ESA.	No
Fanshell (Cyprogenia stegaria)	Endangered	Found in medium to large rivers and buries itself in snad or gravel in deep water. Found in the Ohio River and tributaries	Yes, within one-mile radius of the ESA.	No
Pick mucket (Lampsilis orbiculate)	Endangered	Found in mud and sand substrate and in shallow riffles and shoals free of silt. Found in major rivers and tributaries and the Ohio River.	Yes, within one-mile radius of the ESA.	No
Snuffbox (Epiloblasma triquetra)	Endangered	Found in small to medium sized streams in areas with a swift current. Found in Ohio River tributaries.	Yes, within one-mile radius of the ESA.	No

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA

State Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Washboard (Megalonaias nervosa)	Endangered	Found in large rivers with a habitat of slow currents with sand, gravel, and mud substrates. Found in the Ohio River and tributaries and man-made lakes and ponds.	Yes, within one-mile radius of the ESA.	No
Butterfly (Ellipsaria lineolata)	Endangered	Found in larger rivers with swift currents and sand or gravel substrates. Found in the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Elephant-Ear (Elliptio crassidens)	Endangered	Found in large rivers with mud, sand, and fine gravel substrates. Found in the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Long-solid (Fusconaia maculata maculata)	Endangered	Found in small to large rivers with strong currents and gravel substrate. Found in the Lake Erie tributaries, Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Sharp-ridged pocketbook (Lampsilis ovata)	Endangered	Found in large rivers at depths of 15 to 20 feet as well as free-flowing shallow rivers. Found in the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Ohio pigtoe (Pleurobema cordatum)	Endangered	Found in large to medium sized streams particularly the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Pyramid pigtoe (Pleurobema rubrum)	Endangered	Large to medium sized streams. Found in riffles or shoals in shallow water with coarse substrate or along sand bars and deep water. Found in the Ohio River and tributaries.	Yes, within one-mile radius of the ESA.	No
Monkeyface (Quadrula metanevra)	Endangered	Found in silt-free substrates such as sand, gravel, and cobble in moderately flowing small streams. Found in the Ohio River and	Yes, within one-mile radius of the ESA.	No

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA
State Listed Threatened and Endangered Species Impact Assessment,
Proposed Devola-Gorsuch 138 kV Transmission Line, Washington County, Ohio

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Black sandshell (Ligumia recta)	Threatened	Found in medium to large streams in the riffle-run areas dominated by sand or gravel. Found in the Lake Erie tributaries, Ohio River tributaries, and headwater and small inland streams.	Yes, within one-mile radius of the ESA.	No
Threehorn wartyback (Obliquaria reflexa)	Threatened	Found in large rivers with primary substrate sand or gravel. Found in Lake Erie and tributaries, Ohio River and tributaries, man-made lakes and ponds.	Yes, within one-mile radius of the ESA.	No
Fawnsfoot (Truncilla donaciformis)	Threatened	Found in medium to large rivers with sand and gravel substrate. Found in Lake Erie and tributaries, Ohio River and tributaries, man-made lakes and ponds.	Yes, within one-mile radius of the ESA.	No
Reptiles				
Timber rattlesnake (Crotalus horridus horridus)	Endangered	Woodland areas, dry slopes and rocky outcrops. Uses the sunlit gaps in the canopy for basking.	Per ODNR, due to the location this project is not likely to impact this species.	No
Amphibians				
Eastern hellbender *(Cryptobranchus alleganiensis alleganiensis)*	Endangered	Fast, clear streams and rivers containing many large boulders, logs, and debris.	Per ODNR, it is unlikely that any perennial streams of sufficient size are within the corridor and this species should not be impacted.	No
Eastern spadefoot toad *(Scaphiopus holbrookii)*	Endangered	Areas of sandy soils associated with river valleys, breeding habitats may include flooded agricultural fields.	Per ODNR it is unlikely this project will impact this species.	No

Sources: ODNR, 2017; USFWS, 2017; ECOS, 2016; IUCN, 2017; NatureServe Explorer, 2016

5.3 Protected Species Summary

None of the federal species listed in Table 5-1 are known to occur in the Project vicinity per data obtained from the USFWS. No state or federally-listed species were observed during field assessments, although no species-specific surveys were conducted, and casual observations of these species would be highly unlikely.

Suitable habitat in the ESA may exist for the Indiana bat and northern long-eared bat; however, the data provided by ODNR did not include any records of known presence of either species.

If no caves or abandoned mines are present and trees equal to three inches DBH cannot be avoided, USFWS and ODNR recommend removal of trees only occur between October 1st and March 31st (USFWS, 2017; ODNR, 2017). If suitable trees must be cut during the summer months, surveys should be conducted according to the 2017 Range-Wide Indiana Bat Summer Survey Guidelines (USFWS, 2017a) and the results coordinated with the USFWS and ODNR.

ODNR indicates that the Project has several threatened or endangered mussel and fish species present within a one-mile radius of the ESA. According to the ODNR, the Project must not have an impact on freshwater native mussels within the study area. ODNR recommends following the Ohio Mussel Survey Protocol if any in-stream work is proposed to document that no mussel impacts will occur. The Protocol specifies mussel surveys for certain listed streams and any other streams with a watershed of 10 square miles or larger. All streams in the ESA have watersheds of less than one square mile and no instream work is proposed. Therefore, no streams in the ESA appear to have suitable mussel habitat, and no impacts to mussels will occur.

The ODNR also recommends no in-water work in perennial streams from April 15 through June 30 to reduce impacts to the listed fishes and indigenous aquatic species and their habitat (ODNR, 2017). All fishes listed by the ODNR within the one-mile radius are associated with medium to large perennial streams and rivers. Therefore, no impact to these fishes appears likely.

Regarding listed reptiles and amphibians, the ODNR has indicated that due to the location, this project is not likely to impact these species. The ODNR identifies the floodplains of the Muskingum River and West Fork Duck Creek as potential habitats for the eastern spadefoot toad. The ESA does not include either of these areas.

6 Conclusion

AEP is proposing to construct a new 0.1-mile 138 kV electric transmission line connecting the future Devola Substation and existing Devola -Riverview 138 kV transmission line in Washington County, Ohio. Field surveys were conducted by Jacobs on January 23 and October 10, 2018. The five streams were all identified as Class 1 ephemeral streams and determined to be unnamed tributaries to the Muskingum River. The delineated wetland was identified as a Category 1 PEM wetland (0.02 acre). All five streams and one delineated wetland are expected to be within the USACE's jurisdiction due to the connection or proximity to the Muskingum River or its tributaries. No in-water work is proposed as part of the Project and therefore impact to any of the delineated features is not anticipated. Further coordination with the USACE prior to completing any permit or construction activities is recommended. The Project lies in an area ineligible for Nationwide Permit authorization without an Individual 401 Water Quality certification.

7 References

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Figures

Legend

- Substation
- Existing Transmission Line Structure
- Proposed Devola-Gorsuch 138kV Transmission Line
- Environmental Study Area

BASE MAP SOURCE:
USGS 7.5-minute
Topographic Quadrangles:
Marietta

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:8,000

November 05, 2018

LOCATOR MAP

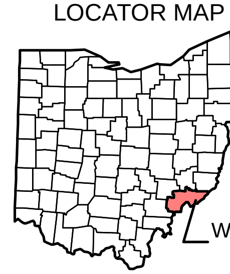
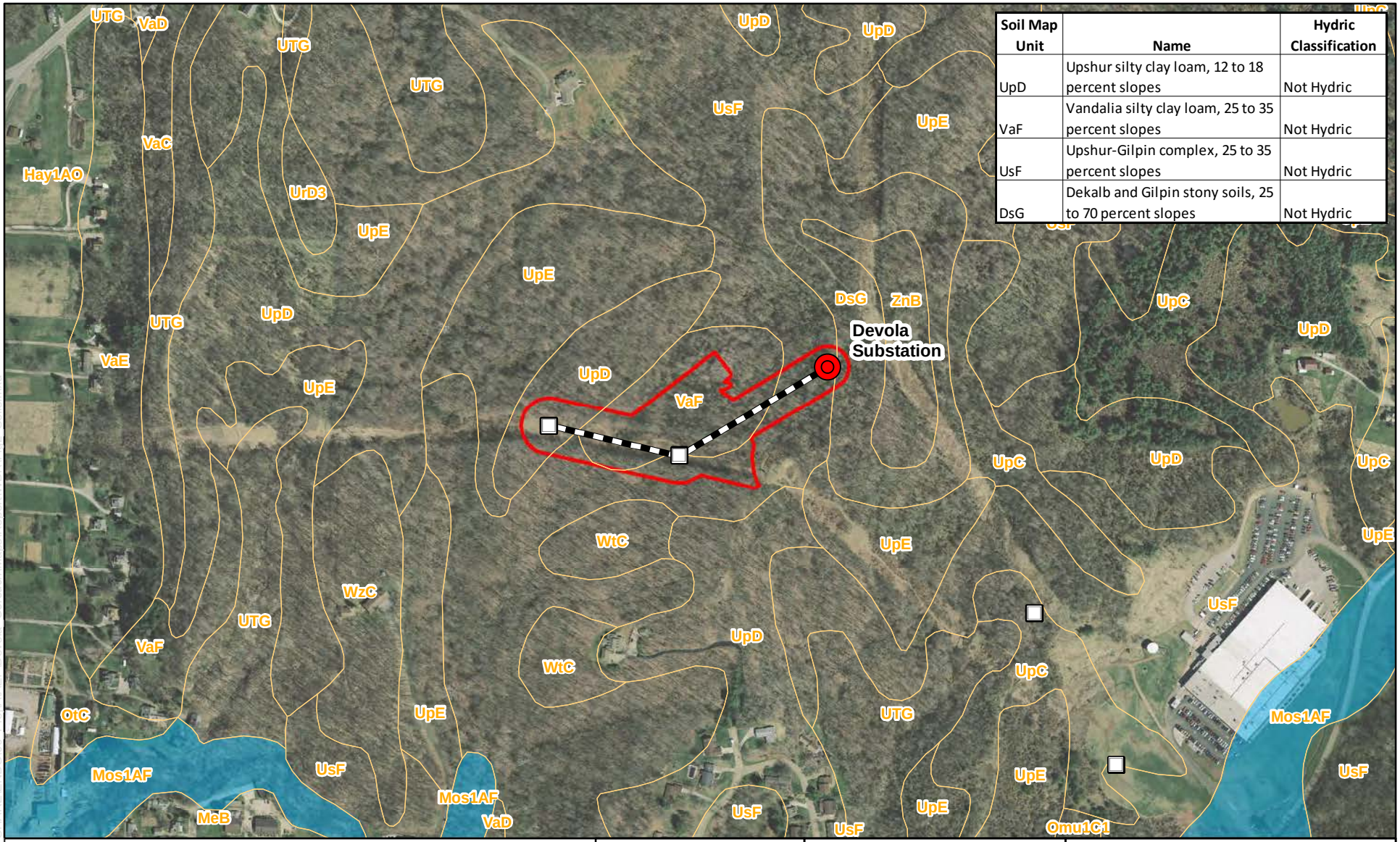


FIGURE 1
USGS TOPOGRAPHIC MAP

Proposed Devola-Gorsuch
138 kV Transmission Line
Washington County, OH

0 500 1,000
Feet



Soil Map Unit	Name	Hydric Classification
UpD	Upshur silty clay loam, 12 to 18 percent slopes	Not Hydric
VaF	Vandalia silty clay loam, 25 to 35 percent slopes	Not Hydric
UsF	Upshur-Gilpin complex, 25 to 35 percent slopes	Not Hydric
DsG	Dekalb and Gilpin stony soils, 25 to 70 percent slopes	Not Hydric

Legend

- Substation
- Proposed Devola-Gorsuch 138kV Transmission Line
- Environmental Study Area
- Soil Map Unit
- Predominantly Non-Hydric Soil

BASE MAP SOURCE:
Ohio Statewide Imagery Program, 2014

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:6,000

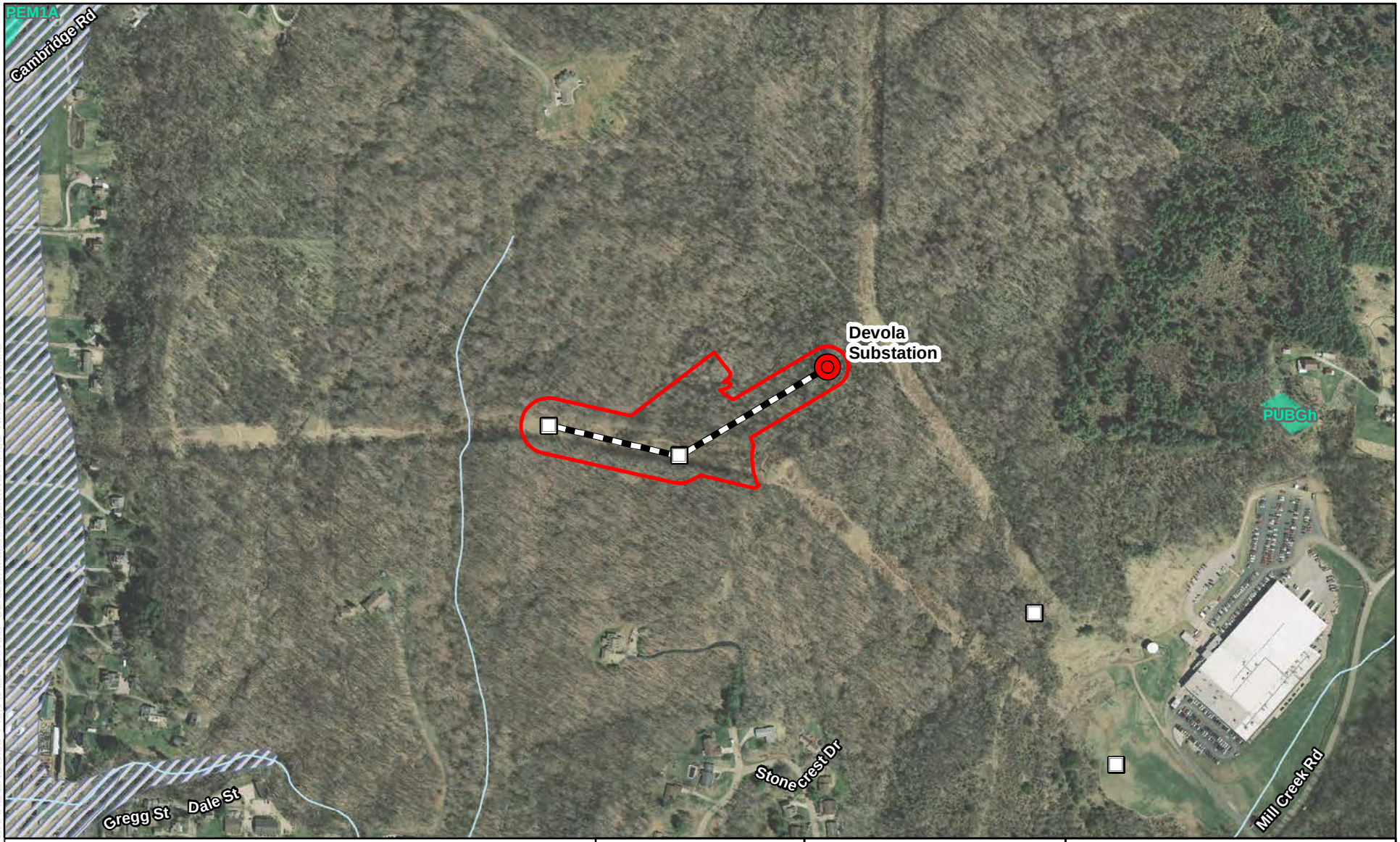
November 05, 2018

LOCATOR MAP

FIGURE 2
SOIL MAP

Proposed Devola-Gorsuch 138 kV Transmission Line
Washington County, OH

0 500 1,000
Feet



Legend

- Substation
- Existing Transmission Line Structure
- Proposed Devola-Gorsuch 138kV Transmission Line
- Environmental Study Area
- Wetland (NWI)
- Stream (NHD)
- Floodplain

BASE MAP SOURCE:
Ohio Statewide Imagery Program, 2014

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:6,000

November 05, 2018

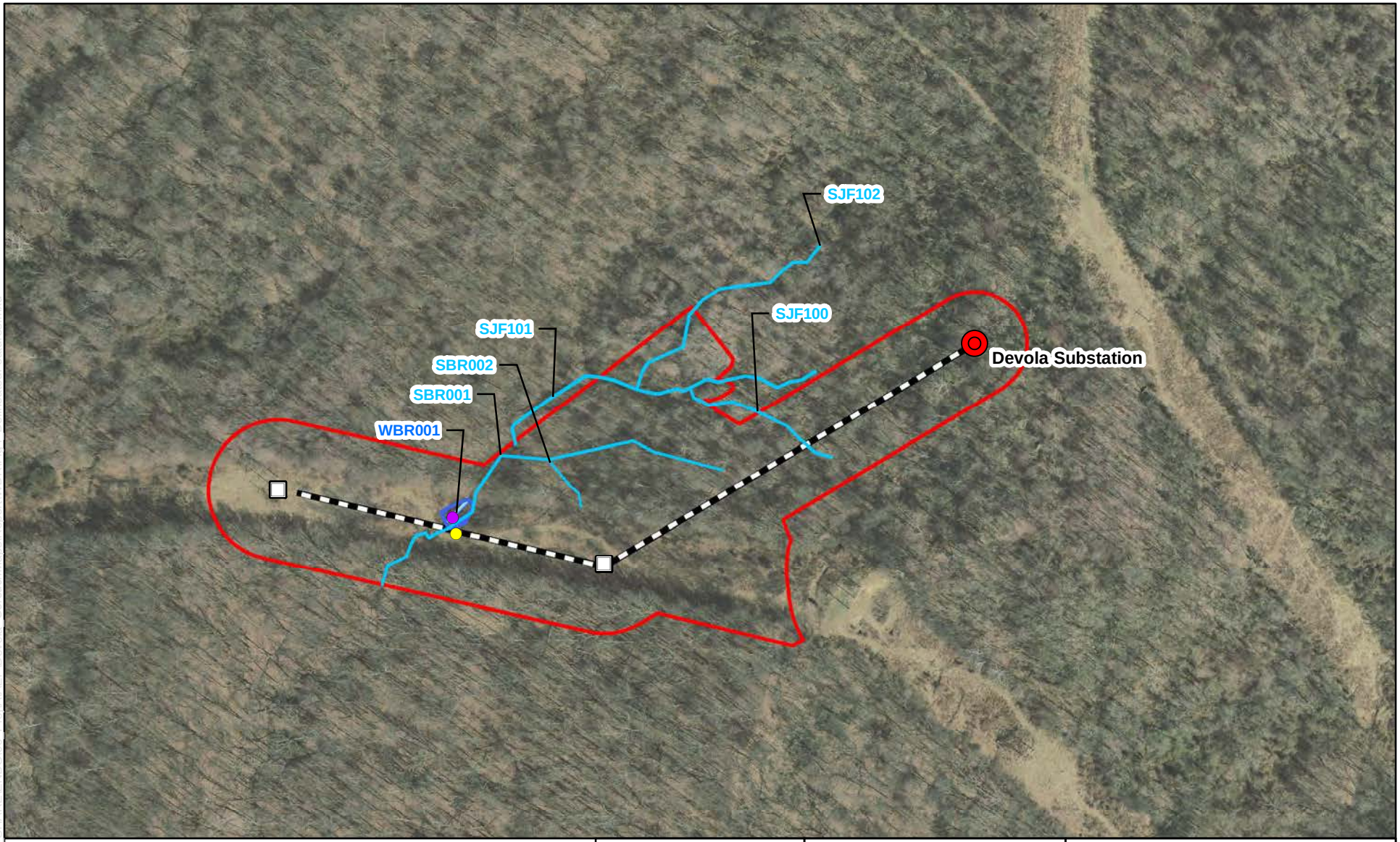
LOCATOR MAP

FIGURE 3
NHD, NWI, AND FLOODPLAIN

AEP OHIO

Proposed Devola-Gorsuch 138 kV Transmission Line Washington County, OH

0 500 1,000
Feet



Legend

- Substation
- Existing Transmission Line Structure
- Proposed Devola-Gorsuch 138kV Transmission Line
- Environmental Study Area
- Upland Data Point
- Wetland Data Point
- Delineated Stream
- Delineated Wetland

BASE MAP SOURCE:
Ohio Statewide Imagery Program, 2014

Coordinate System: State Plane
Ohio South FIPS 3402 Feet
Datum: NAD 1983
Scale 1:2,400

November 05, 2018

LOCATOR MAP

FIGURE 4
WETLAND, WATERBODIES DELINEATION MAP

AEP OHIO

Proposed Devola-Gorsuch
138 kV Transmission Line
Washington County, OH

0 100 200
Feet

Appendix A
OEPA Primary Headwater Habitat Evaluation Forms

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **29**

SITE NAME/LOCATION: Devola-Gorsuch 138kV Transmission Line, Washington County, Ohio

SITE NUMBER: SBR001 RIVER BASIN: 05040004 DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 600 LAT.: 39.44814 LONG.: -81.45048 RIVER CODE: RIVER MILE:

DATE: 10/10/18 SCORER: BCR COMMENTS: Ephemeral

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☐ NONE / NATURAL CHANNEL ☑ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

Crosses existing transmission line ROW

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐ ☐	BLDR SLABS [16 pts]	0%	☐ ☐	SILT [3 pt]	0%
☐ ☐	BOULDER (>256 mm) [16 pts]	0%	☐ ☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐ ☐	BEDROCK [16 pt]	0%	☐ ☐	FINE DETRITUS [3 pts]	0%
☐ ☐	COBBLE (65-256 mm) [12 pts]	10%	☐ ☐	CLAY or HARDPAN [0 pt]	0%
☐ ☑	GRAVEL (2-64 mm) [9 pts]	30%	☐ ☐	MUCK [0 pts]	0%
☑ ☐	SAND (<2 mm) [6 pts]	50%	☐ ☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 10.00% (A)

Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

19

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 3

Pool Depth Max = 30

5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: **AVERAGE BANKFULL WIDTH (meters):** 0.76

Bankfull Width Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: Crosses cleared/maintained transmission line ROW

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☑ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS: Estimated ephemeral flow regime

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☐ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☑ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Little Muskingum River** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Fearing Township**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: **0.00**

Photograph Information: **4 photos 307-310 (upstream, downstream, substrate, substrate)**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **95%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

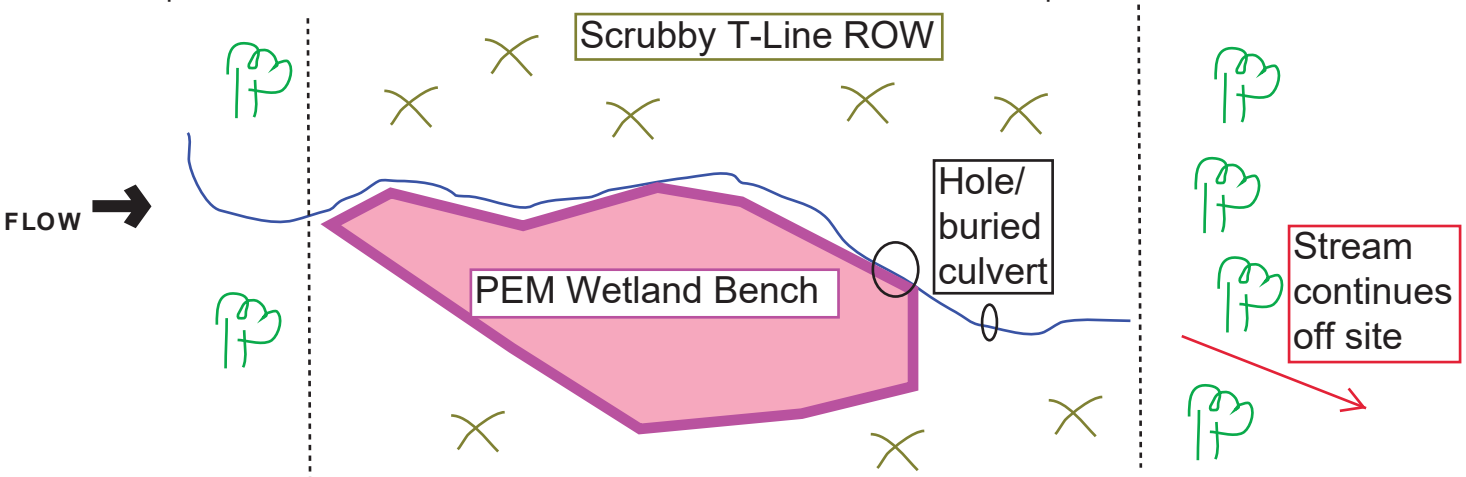
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



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Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **24**

SITE NAME/LOCATION: Devola-Gorsuch 138kV Transmission Line, Washington County, Ohio

SITE NUMBER: SBR002 RIVER BASIN: 05040004 DRAINAGE AREA (mi²): 0.01

LENGTH OF STREAM REACH (ft): 600 LAT.: 39.44829 LONG.: -81.44829 RIVER CODE: RIVER MILE:

DATE: 10/10/18 SCORER: BCR COMMENTS: Ephemeral

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☐	SILT [3 pt]	40%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☐	CLAY or HARDPAN [0 pt]	0%
☑	GRAVEL (2-64 mm) [9 pts]	20%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	30%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

19

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☐	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☑	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: **MAXIMUM POOL DEPTH (centimeters):** 0

Pool Depth Max = 30

0

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: **AVERAGE BANKFULL WIDTH (meters):** 0.30

Bankfull Width Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☐	☐	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☑	☑	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☐	Stream Flowing	☐	Moist Channel, isolated pools, no flow (Intermittent)
☐	Subsurface flow with isolated pools (Interstitial)	☑	Dry channel, no water (Ephemeral)

COMMENTS: Ephemeral flow regime

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐	None	☐	1.0	☐	2.0	☐	3.0
☑	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☐ Moderate to Severe ☑ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Little Muskingum River** Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Fearing Township**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **Y** Date of last precipitation: _____ Quantity: **0.00**

Photograph Information: **3 photos 304-306 (upstream, downstream, substrate)**

Elevated Turbidity? (Y/N): **N** Canopy (% open): **5%**

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

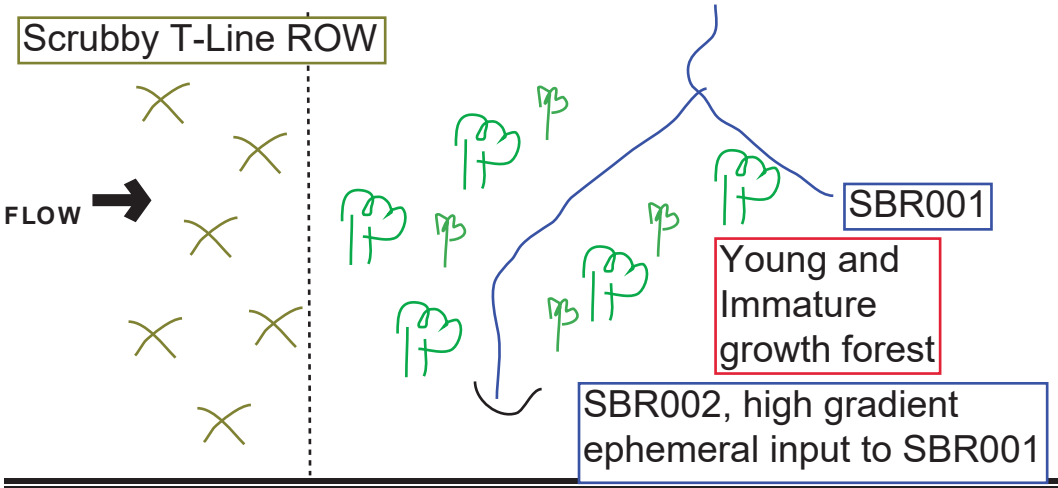
Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



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Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **17**

SITE NAME/LOCATION: **AEP Devola Station**

SITE NUMBER: **SJF100** RIVER BASIN: **HUC 050400041204** DRAINAGE AREA (mi²): **<0.01**

LENGTH OF STREAM REACH (ft): **210** LAT. **39.44838** LONG. **-81.44859** RIVER CODE: RIVER MILE:

DATE: **01/23/18** SCORER: **J. Freer** COMMENTS: **Heavy rain 1/22 and 1/23**

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	30%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **0.00%** (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** **TOTAL NUMBER OF SUBSTRATE TYPES:** **4**

HHEI Metric Points

Substrate Max = 40

7

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: Rained heavily last night/this morning **MAXIMUM POOL DEPTH (centimeters):** **3**

Pool Depth Max = 30

5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: **AVERAGE BANKFULL WIDTH (meters):** **0.90**

Bankfull Width Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS: Ephemeral, heavy rain last night

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Muskingum River** Distance from Evaluated Stream **1,800.00** ft

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Muskingum twp.**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **01/23/18** Quantity: **0.16**

Photograph Information: **US, DS, Substrate**

Elevated Turbidity? (Y/N): **Y** Canopy (% open): **30%** no leaves

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

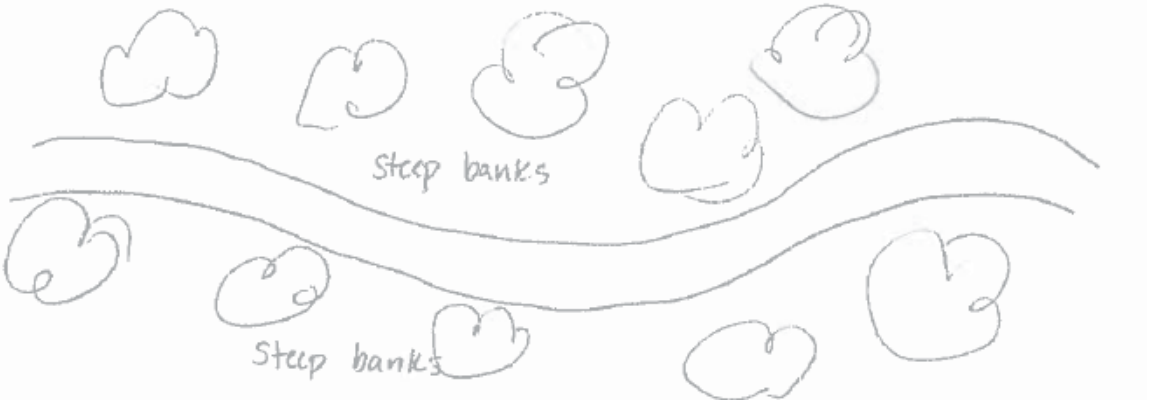
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW →



Save as pdf Reset Form

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : **17**

SITE NAME/LOCATION: **AEP Devola Station**

SITE NUMBER: **SJF101** RIVER BASIN: **HUC 050400041204** DRAINAGE AREA (mi²): **<0.01**

LENGTH OF STREAM REACH (ft): **140** LAT.: **39.44872** LONG.: **-81.44864** RIVER CODE: _____ RIVER MILE: _____

DATE: **01/23/18** SCORER: **J. Freer** COMMENTS: **Heavy rain 1/22 and 1/23**

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	30%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: **0.00%** (A) Substrate Percentage Check: 100% (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **3** **TOTAL NUMBER OF SUBSTRATE TYPES:** **4**

HHEI Metric Points

Substrate Max = 40

7

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: Rained heavily last night/this morning **MAXIMUM POOL DEPTH (centimeters):** **2**

Pool Depth Max = 30

5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: _____ **AVERAGE BANKFULL WIDTH (meters):** **1.20**

Bankfull Width Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS: _____

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS: Ephemeral, heavy rain last night

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐	None	☑	1.0	☐	2.0	☐	3.0
☐	0.5	☐	1.5	☐	2.5	☐	>3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Muskingum River** Distance from Evaluated Stream **1,800.00** ft

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Muskingum twp.**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **01/23/18** Quantity: **0.16**

Photograph Information: **US, DS, Substrate**

Elevated Turbidity? (Y/N): **Y** Canopy (% open): **30%** no leaves

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

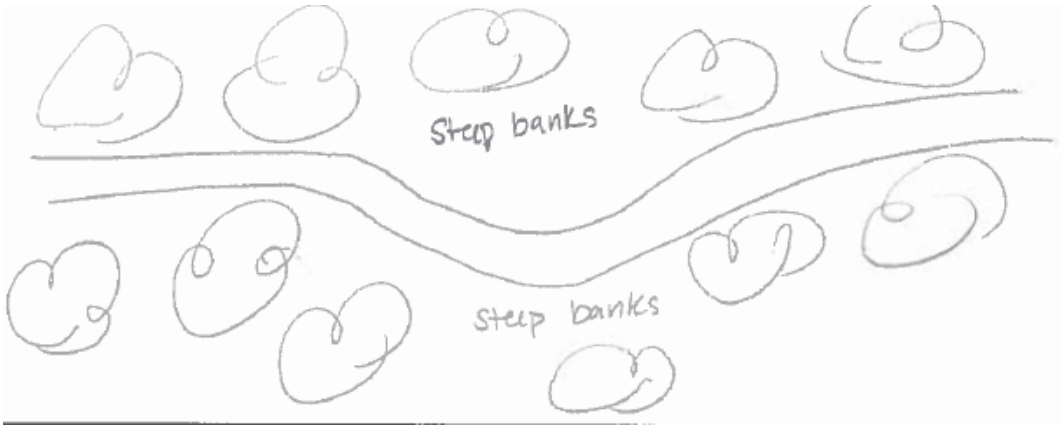
Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW →



Save as pdf Reset Form

Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3) : 17

SITE NAME/LOCATION: AEP Devola Station

SITE NUMBER: SJF102 RIVER BASIN: HUC 050400041204 DRAINAGE AREA (mi²): <0.01

LENGTH OF STREAM REACH (ft): 195 LAT.: 39.44921 LONG.: -81.44862 RIVER CODE: RIVER MILE:

DATE: 01/23/18 SCORER: J. Freer COMMENTS: Heavy rain 1/22 and 1/23

NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions

STREAM CHANNEL MODIFICATIONS: ☑ NONE / NATURAL CHANNEL ☐ RECOVERED ☐ RECOVERING ☐ RECENT OR NO RECOVERY

1. SUBSTRATE (Estimate percent of every type of substrate present. Check *ONLY* two predominant substrate *TYPE* boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]	0%	☑	SILT [3 pt]	50%
☐	BOULDER (>256 mm) [16 pts]	0%	☐	LEAF PACK/WOODY DEBRIS [3 pts]	10%
☐	BEDROCK [16 pt]	0%	☐	FINE DETRITUS [3 pts]	0%
☐	COBBLE (65-256 mm) [12 pts]	0%	☑	CLAY or HARDPAN [0 pt]	30%
☐	GRAVEL (2-64 mm) [9 pts]	10%	☐	MUCK [0 pts]	0%
☐	SAND (<2 mm) [6 pts]	0%	☐	ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0.00% **(A)** Substrate Percentage Check: 100% **(B)**

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 **TOTAL NUMBER OF SUBSTRATE TYPES:** 4

HHEI Metric Points

Substrate Max = 40

7

A + B

2. Maximum Pool Depth ***(Measure the maximum pool depth within the 61 meter (200 ft)*** evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check *ONLY* one box):

☐	> 30 centimeters [20 pts]	☐	> 5 cm - 10 cm [15 pts]
☐	> 22.5 - 30 cm [30 pts]	☑	< 5 cm [5 pts]
☐	> 10 - 22.5 cm [25 pts]	☐	NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS: Rained heavily last night/this morning **MAXIMUM POOL DEPTH (centimeters):** 3

Pool Depth Max = 30

5

3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) **(Check *ONLY* one box):**

☐	> 4.0 meters (> 13') [30 pts]	☐	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
☐	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	☑	≤ 1.0 m (<=3' 3") [5 pts]
☐	> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]		

COMMENTS: **AVERAGE BANKFULL WIDTH (meters):** 0.90

Bankfull Width Max=30

5

This information must also be completed

RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆

RIPARIAN WIDTH (Per Bank) L	R	FLOODPLAIN QUALITY (Most Predominant per Bank) L	R		L	R	
☑	☑	Wide >10m	☑	☑	Mature Forest, Wetland	☐	☐	Conservation Tillage
☐	☐	Moderate 5-10m	☐	☐	Immature Forest, Shrub or Old Field	☐	☐	Urban or Industrial
☐	☐	Narrow <5m	☐	☐	Residential, Park, New Field	☐	☐	Open Pasture, Row Crop
☐	☐	None	☐	☐	Fenced Pasture	☐	☐	Mining or Construction

COMMENTS:

FLOW REGIME *(At Time of Evaluation)* (Check *ONLY* one box):

☑ Stream Flowing
☐ Subsurface flow with isolated pools (Interstitial)
☐ Moist Channel, isolated pools, no flow (Intermittent)
☐ Dry channel, no water (Ephemeral)

COMMENTS: Ephemeral, heavy rain last night

SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check *ONLY* one box):

☐ None	☐ 1.0	☑ 2.0	☐ 3.0
☐ 0.5	☐ 1.5	☐ 2.5	☐ >3

STREAM GRADIENT ESTIMATE

☐ Flat (0.5 ft/100 ft) ☐ Flat to Moderate ☐ Moderate (2 ft/100 ft) ☑ Moderate to Severe ☐ Severe (10 ft/100 ft)

ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):

QHEI PERFORMED? - ☐ Yes ☑ No QHEI Score _____ (If Yes, Attach Completed QHEI Form)

DOWNSTREAM DESIGNATED USE(S)

☑ WWH Name: **Muskingum River** Distance from Evaluated Stream **1,800.00** ft

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION

USGS Quadrangle Name: **Marietta** NRCS Soil Map Page: _____ NRCS Soil Map Stream Order _____

County: **Washington** Township / City: **Muskingum twp.**

MISCELLANEOUS

Base Flow Conditions? (Y/N): **N** Date of last precipitation: **01/23/18** Quantity: **0.16**

Photograph Information: **US, DS, Substrate**

Elevated Turbidity? (Y/N): **Y** Canopy (% open): **35%** no leaves

Were samples collected for water chemistry? (Y/N): **N** (Note lab sample no. or id. and attach results) Lab Number: _____

Field Measures: Temp (°C) _____ Dissolved Oxygen (mg/l) _____ pH (S.U.) _____ Conductivity (µmhos/cm) _____

Is the sampling reach representative of the stream (Y/N) **Y** If not, please explain: _____

Additional comments/description of pollution impacts: _____

BIOTIC EVALUATION

Performed? (Y/N): **N** (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N) **N** Voucher? (Y/N) **N** Salamanders Observed? (Y/N) **N** Voucher? (Y/N) **N**

Frogs or Tadpoles Observed? (Y/N) **N** Voucher? (Y/N) **N** Aquatic Macroinvertebrates Observed? (Y/N) **N** Voucher? (Y/N) **N**

Comments Regarding Biology: _____

DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):

Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW →

Save as pdf Reset Form

Appendix B
United States Army Corps of Engineers
Wetland/Upland Determination Forms

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Devola-Gorsuch 138 kV Transmission Line City/County: Washington Sampling Date: 10/10/18
Applicant/Owner: AEP State: Ohio Sampling Point WBR001
Investigator(s): Brian Robertson, Matt Abbott Section, Township, Range: S25 T1N R1E
Landform (hillslope, terrace, etc.): floodplain bench Local relief (concave, convex, none): concave Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat.: 39.448207 Long.: -81.450454 Datum: WGS 84
Soil Map Unit Name VaF-Vandalia silty clay loam, 25 to 35 percent slopes NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year Yes X No ____ (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ____, soil X, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? Yes Hydric soil present? Yes Wetland hydrology present? Yes	**Is the sampled area within a wetland?** Yes

Remarks:

Wetland data point for WBR001 (PEM), small bench along ephemeral stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present? Yes ____ No X Depth (inches): ____
Water table present? Yes ____ No X Depth (inches): ____
Saturation present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: WBR001

Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus allegheniensis*	10	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Herb Stratum	Plot Size (5 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1	*Persicaria perfoliata*	90	Y	FAC
2	*Onoclea sensibilis*	25	N	FACW
3	*Persicaria maculosa*	15	N	FACW
4	*Eleocharis obtusa*	5	N	OBL
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		135	= Total Cover	

Woody Vine Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	2	5
Herb Stratum	27	68
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	5	x 1 =	5
FACW species	40	x 2 =	80
FAC species	90	x 3 =	270
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column totals	145 (A)		395 (B)

Prevalence Index = B/A = 2.72

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

___ Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** WBR001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-7	10YR 4/2	80	2.5YR 5/3	20	C	PL/M	Sandy Clay Loam	floodplain dep. patterns
7-18	5YR 4/3	90	2.5YR 4/8	10	C	M	Sandy Clay Loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10) **(LRR N)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
___ Thin Dark Surface (S9) (**MLRA 147, 148)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
___ Umbric Surface (F13) **(MLRA 136, 122)**
___ Piedmont Floodplain Soils (F19) (**MLRA 148**)
___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)** Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
_X_ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks: Soil determined to be problematic due to frequent floodplain deposition. Redox features present, yet faint.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Devola-Gorsuch 138 kV Transmission Line City/County: Washington Sampling Date: 10/10/18
Applicant/Owner: AEP State: Ohio Sampling Point UPLBR001
Investigator(s): Brian Robertson, Matt Abbott Section, Township, Range: S25 T1N R1E
Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%): 10
Subregion (LRR or MLRA): LRR N Lat.: 39.448207 Long.: -81.450454 Datum: WGS 84
Soil Map Unit Name VaF-Vandalia silty clay loam, 25 to 35 percent slopes NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year Yes X No _____ (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? No Hydric soil present? No Wetland hydrology present? No	**Is the sampled area within a wetland?** No

Remarks:

Upland data point for WBR001 (PEM), collected on slope adjacent to stream/wetland within existing transmission line ROW.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface water present? Yes _____ No X Depth (inches): _____
Water table present? Yes _____ No X Depth (inches): _____
Saturation present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: UPLBR001

Tree Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus allegheniensis*	10	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Herb Stratum	Plot Size (5 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1	*Lespedeza cuneata*	80	Y	FACU
2	*Festuca arundinacea*	30	Y	FACU
3	*Persicaria perfoliata*	10	N	FAC
4	*Dryopteris goldiana*	10	N	FAC
5	*Daucus carota*	1	N	UPL
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		131	= Total Cover	

Woody Vine Stratum	Plot Size (30 ft.)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	2	5
Herb Stratum	26	66
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	20	x 3 =	60	
FACU species	120	x 4 =	480	
UPL species	1	x 5 =	5	
Column totals	141	(A)	545	(B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

___ Dominance test is >50%

___ Prevalence index is ≤3.0*

___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL **Sampling Point:** UPLBR001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-14	10YR 4/3	100					Silty Clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10) **(LRR N)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7)
___ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
___ Thin Dark Surface (S9) (**MLRA 147, 148)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
___ Umbric Surface (F13) **(MLRA 136, 122)**
___ Piedmont Floodplain Soils (F19) (**MLRA 148**)
___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**MLRA 147)**
___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___N___

Remarks:

Appendix C
Ohio Environmental Protection Agency ORAM Forms

ORAM v. 5.0 Field Form Quantitative Rating

Site: Gorsuch-Devola, WBR001	**Rater(s):** BCR	**Date:** 10/10/18

Metric 1. Wetland Area (size).

0 (max 6 pts.) | 0 (subtotal)

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [ ] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [x] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

8 (max 14 pts.) | 8 (subtotal)

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [x] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [x] LOW. Old field (>10 years), shrubland, young second growth forest. (5)
- [x] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [ ] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

10 (max 30 pts.) | 18 (subtotal)

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [x] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [x] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

7 (max 20 pts.) | 25 (subtotal)

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [x] clearcutting
- [ ] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

25 (subtotal this page)

ORAM v. 5.0 Field Form Quantitative Rating

Site: Gorsuch-Devola, WBR001	**Rater(s):** BCR	**Date:** 10/10/18

25
subtotal first page

0 (max 10 pts.) | 25 (subtotal)

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

1 (max 20 pts.) | 26 (subtotal)

Metric 6. Plant communities, interspersion, microtopography.

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [0] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummucks/tussucks
- [ ] Coarse woody debris >15cm (6in)
- [ ] Standing dead >25cm (10in) dbh
- [ ] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

26 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

last revised 1 February 2001 jjm

Appendix D
Photo Documentation

Site Name	Photo Direction
Stream SBR001 (Ephemeral)	Upstream

Site Name	Photo Direction
Stream SBR002 (Ephemeral)	Upstream

Site Name	Photo Direction
Stream SJF100 (Ephemeral)	Downstream

Site Name	Photo Direction
Stream SJF101 (Ephemeral)	Upstream

Site Name	Photo Direction
Stream SJF102 (Ephemeral)	Downstream

Appendix E
Threatened and Endangered Species Consultation

From:	susan_zimmermann@fws.gov
To:	Qualio, Trisha/PGH
Cc:	Frank, Mike/CIN; nathan.reardon@dnr.state.oh.us; kate.parsons@dnr.state.oh.us
Subject:	Devola 138 kV Substation Project, Marietta, Washington Co. [EXTERNAL]
Date:	Monday, September 11, 2017 2:25:07 PM
Attachments:	Capture of Dan.PNG

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# 03E15000-2017-TA-1845

Dear Ms. Qualio,

We have received your recent correspondence requesting information about the subject proposal. There are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The U.S. Fish and Wildlife Service (Service) recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

FEDERALLY LISTED SPECIES COMMENTS: All projects in the State of Ohio lie within the range of the federally endangered **Indiana bat** (*Myotis sodalis*) and the federally threatened **northern long-eared bat** (*Myotis septentrionalis*). In Ohio, presence of the Indiana bat and northern long-eared bat is assumed wherever suitable habitat occurs unless a presence/absence survey has been performed to document absence. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags =3 inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. In the winter, Indiana bats and northern long-eared bats hibernate in caves and abandoned mines.

Should the proposed site contain trees =3 inches dbh, we recommend that trees be saved wherever possible. If any caves or abandoned mines may be disturbed, further coordination with this office is requested to determine if fall or spring portal surveys are warranted. If no caves or abandoned mines are present and trees =3 inches dbh cannot be avoided, we recommend that removal of any trees =3 inches dbh only occur between October 1 and March 31. Seasonal clearing is being recommended to avoid adverse effects to Indiana bats and northern long-eared bats. While incidental take of northern long-eared bats from most tree clearing is exempted by a 4(d) rule (see http://www.fws.gov/midwest/endangered/mammals/nleb/index.html), incidental take of Indiana bats is still prohibited without a project-specific exemption. Thus, seasonal clearing is recommended where Indiana bats are assumed present.

If implementation of this seasonal tree cutting recommendation is not possible, summer surveys may be conducted to document the presence or probable absence of Indiana bats within the project area during the summer. If a summer survey documents probable absence of Indiana bats, the 4(d) rule for the northern long-eared bat could be applied. Surveys must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office. Surveyors must have a valid federal permit. Please note that summer surveys may only be conducted between June 1 and August 15.

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 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.

Due to the project type, size, and location, we do not anticipate adverse effects to any other 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 Service should be initiated to assess any potential impacts.

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 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 Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW

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

November 20, 2017

Trish Qualio
CH2M
400 Industry Drive, Suite 100
Pittsburgh, PA 15275

Re: 17-680; Devola 138 kV Substation Project

Project: The proposed project involves the construction of a new 138 kV substation that will connect 138 kV lines from the future Macksburg Substation via the Highland Ridge Substation.

Location: The proposed project is in Devola 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 records at or within a one-mile radius of the project area:

Fanshell (*Cyprogenia stegaria*), E, FE
Butterfly (*Ellipsaria lineolata*), E,
Long-solid (*Fusconaia maculata maculata*), E
Pink mucket (*Lampsilis orbiculata*), E, FE
Washboard (*Megalonaias nervosa*), E
Threehorn wartyback (*Obliquaria reflexa*), T
Sheepnose (*Plethobasus cyphyus*), E, FE
Ohio pigtoe (*Pleurobema cordatum*), E
Round pigtoe (*Pleurobema sintoxia*), SC
Monkeyface (*Quadrula metanevra*), E
Fawnsfoot (*Truncilla donaciformis*), T
River redhorse (*Moxostoma carinatum*), SC

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.

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.

Statuses are defined as: E = state endangered; T = state threatened; P = state potentially threatened; SC = state species of concern; SI = state special interest; A = species recently added to state inventory, status not yet determined; X = presumed extirpated in Ohio; FE = federal endangered, FT = federal threatened, FSC = federal species of concern, FC = federal candidate species.

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: 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, 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. Due to the location, and that there is no in-water work 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.

Water Resources: The Division of Water Resources has the following comment.

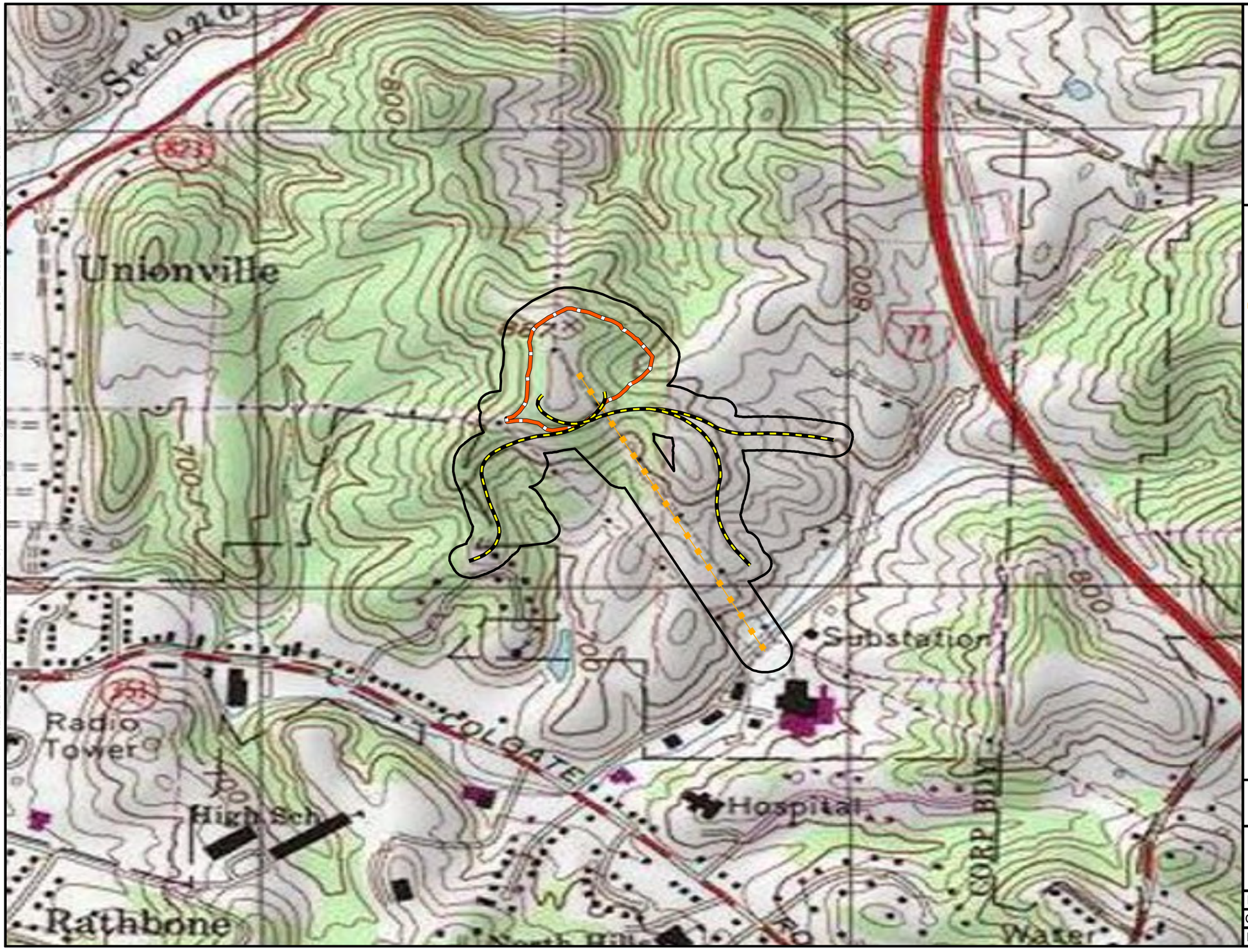
The local floodplain administrator should be contacted concerning the possible need for any floodplain permits or approvals for this project. Your local floodplain administrator contact information can be found at the website below.

http://water.ohiodnr.gov/portals/soilwater/pdf/floodplain/Floodplain%20Manager%20Community%20Contact%20List_8_16.pdf

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



LOCATOR MAP

LEGEND:

N

- Devola Substation Footprint
- Devola-Mill Creek Transmission Line
- Proposed Access Road
- Study Area

BASE MAP SOURCE:
USGS 7.5' Topographic Quadrangle
Marietta, Ohio

0 500 1,000

Scale In Feet

AEP OHIO TRANSMISSION COMPANY

Devola Substation

FIGURE 1
TOPOGRAPHIC OVERVIEW

PN: 692027	DATE: 8/24/2017
CREATED BY: MV	ch2m.
REVIEWED BY: MF	

\\brookside\GIS_SHARE\ENBG\00_Proj\AAEP\Marietta_BellRidge_Devola\Maps\Report\Devola_Substation\Figure_1_Overview.mxd

Appendix E LTFR: PUCO Form TE 9

PUCO FORM FE-T9
AEP OHIO TRANSMISSION COMPANY
SPECIFICATION OF PLANNED ELECTRIC TRANSMISSION LINES

Filed May 31, 2018

1.	**LINE NAME AND (PJM NUMBER):**	Devola-Gorsuch (s1125)
2.	**POINTS OF ORIGIN AND TERMINATION**	Devola-Gorsuch; INTERMEDIATE STATION - N/A
3.	**RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS**	8.2 miles, 100 feet, single circuit
4.	**VOLTAGE: DESIGN / OPERATE**	138 kV / 138 kV
5.	**APPLICATION FOR CERTIFICATE:**	Submitted
6.	**CONSTRUCTION:**	2020
7.	**CAPITAL INVESTMENT:**	Total is approximately $111 Million
8.	**PLANNED SUBSTATION:**	NAME - Devola; TRANS. VOLTAGE - 138kV; ACREAGE - ~10 acres; LOCATION - Marietta, Ohio
9.	**SUPPORTING STRUCTURES:**	Overhead Steel
10.	**PARTICIPATION WITH OTHER UTILITIES**	N/A
11.	**PURPOSE OF THE PLANNED TRANSMISSION LINE**	Area reliability/serve increased area capacity.
12.	**CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION**	Reduced area reliability
13.	**MISCELLANEOUS:**	N/A

Summary: Application (Construction Notice) electronically filed by Ms. Christen M. Blend on behalf of AEP Ohio Transmission Power Company, Inc.