



Legal Department

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January 9, 2018

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Chairman Asim Z. Haque
Ohio Power Siting Board
180 East Broad Street
Columbus, Ohio 43215

Re: In the Matter of the Letter of Notification Application of AEP Ohio Transmission Company, Inc. for a Certificate of Environmental Compatibility and Public Need for the Devola Station Project Case No. 18-0034-EL-BLN

Dear Chairman Haque,

Attached please find a copy of the Letter of Notification (LON) for the above-referenced project by AEP Ohio Transmission Company, Inc. (AEP Ohio Transco). This filing and notice is in accordance with O.A.C. 4906-6-05.

A copy of this filing will also be submitted to the executive director or the executive director's designee. A copy will be provided to the Board Staff via electronic message. The Company will also submit a check in the amount of \$2,000 to the Treasurer, State of Ohio, for Fund 5610 for the expedited fees.

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

Respectfully submitted,

/s/ Christen Blend
Christen 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

Letter of Notification for Devola Station Project



Case No. 18-0034-EL-BLN

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

Submitted by:
AEP Ohio Transmission Company, Inc.

January 9, 2018

Letter of Notification for Devola Station Project

4906-6-05

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

4906-6-05(B) General Information

B(1) Project Description

The applicant shall provide 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 or construction notice application.

AEP Ohio Transco has identified the need to construct the Devola Station Project (the Project) in Muskingum Township, Washington County, Ohio. The Project consists of constructing a new 138 kilovolt (kV) electric transmission substation.

The Project will be constructed on property currently owned by AEP Ohio Transco located approximately 0.4-mile northwest of Mill Creek Road near the community of Devola, Ohio, which is approximately 2.4 miles north of the City of Marietta. A planned access road crosses property currently not owned by AEP Ohio Transco. The location of the Project is shown on a United States Geological Survey (USGS) Topographic Map as Exhibit 1-1 in Appendix A.

The Project meets the requirements for a Letter of Notification (LON) because it is within the types of projects defined by Item (3) of Appendix A to O.A.C. 4906-1-01, *Application Requirement Matrix For Electric Power Transmission Lines*:

(3) Constructing a new electric power transmission substation.

B(2) Statement of Need

If the proposed project is an electric power transmission line 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 where it is in need of rebuild and redesign to meet the needs of customers across the region. The

LETTER OF NOTIFICATION FOR DEVOLA STATION PROJECT

Companies have developed a multi-year construction plan that will replace much of the existing 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 proposed Lamping to Devola 138 kV substations.

The proposed Devola Station is in the 2017 LTFR; the station is listed as Tab FE-T10_OHT, and the connecting lines are on Tab FE-T9_OHT. The PJM number for this project is S1125. The station will be part of the overall program by connecting future and existing 138 kV transmission lines in the area. The addition of the substation 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.

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 1-1 in Appendix A shows 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.

AEP Ohio Transco evaluated land options to identify potential sites for the Project to determine the location of the proposed Devola Station. The proposed site for the Project represented the most appropriate solution for meeting AEP Ohio Transco's future capacity needs in the area. Specifically, the site chosen for the Project aligns with the proposed routes for the future Bell Ridge – Devola 138 kV Transmission Line, the Macksburg – Devola 138 kV Transmission Line and the Devola – Mill Creek 138 kV Transmission Line (Exhibit 1-1 in Appendix A).

The selected Project location was the most appropriate option because it is close to existing and proposed electric transmission lines, AEP Ohio Transco owns the land, the chosen location maximizes the availability of relatively level ridgetops while minimizing land use impacts (e.g., residential areas), and the chosen location minimizes ecological impacts (no impacts to streams are planned).

LETTER OF NOTIFICATION FOR DEVOLA STATION PROJECT

AEP Ohio Transco has been in communication with the single property owner of land where a permanent access road would be necessary for the Station. AEP Ohio Transco owns the land that is proposed for the substation area. AEP Ohio Transco is in negotiation to acquire an easement necessary to accommodate the permanent access road. Prior to the acquisition of the aforementioned easement, AEP will utilize a temporary access road to the site for tree clearing in advance of construction.

B(5) Public Information Program

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

The Project will be located on property owned by AEP Ohio Transco. Within seven days of filing this LON, AEP Ohio Transco will issue a public notice in a newspaper of general circulation in the Project Area. The notice will comply with all requirements under O.A.C. 4906-6-08(A)(1)-(6). Further, AEP Ohio Transco maintains a website (<http://aeptransmission.com/ohio/>), which provides the public access to an electronic copy of this LON and the public notice for this LON. The LON will also be sent to applicable public officials concurrently with submittal to OPSB, and a paper copy of the LON will be provided to the Marietta/Washington County Library located at 615 Fifth Street, Marietta, Ohio. Lastly, AEP Ohio Transco retains land agents who 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 February 2018 with an anticipated in-service date of March 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 1-1 in Appendix A identifies the location of the Project Area on a USGS quadrangle map. Exhibit 1-2 in Appendix A shows the layout of the station 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. The Project Area is located approximately 0.4 mile up the transmission right-of-way to the north from Mill Creek 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 new Devola Station will occur on property owned by AEP Transco Ohio in Muskingum Township, Washington County. In addition, AEP Ohio Transco will obtain an easement for the permanent access road on a property near the proposed substation. No other property acquisition or easements are required to construct and operate Devola Station.

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 be constructed on property owned by the AEP Ohio Transco totaling an estimated 80 acres. The 138 kV Devola Station footprint will be approximately 3.7 acres. The equipment and facilities described below will be installed within the fenced area of the proposed Devola Station. The preliminary station layout is provided in Appendix B.

Breakers

There will be six (6) 138 kV breakers and two (2) 138kV “Circuit-switchers” installed at the substation. These breakers will be SF6 (sulfur hexafluoride) gas insulated breakers. There will be eight (8) 17.5kV distribution breakers, two (2) 17.5kV totalizing distribution circuit breakers and one (1) 17.5kV bus tie distribution breaker.

Station Configuration (Layout)

The station is designed as a 138kV breaker-and-a-half design, with an initial installation of two (2) strings, with a room to build a 3rd string.

Bus Arrangement and Structures

The Project will be initially installed as follows: There will be a 138 kV two (2) string breaker-and-a-half layout with four 138kV line terminations (expandable to six). Equipment support steel structures will be designed using structural tubing, folded plate tapered tubular, and/or wide flange structures. There will be four(4) 138 kV H-Frame dead-end expandable bays. All yard structures will be ASTM A36, ASTM A500, or ASTM A572 steel hot-dip galvanized for corrosion protection. The high bus throughout the yard will be approximately 22 feet in height.

LETTER OF NOTIFICATION FOR DEVOLA STATION PROJECT

Transformers

There will be two (2) transformers installed at the station to serve AEP Ohio distribution load, which will be 2- 30 MVA 138/12 Transformers. There will be two (2) sets of smaller 50kVA distribution transformers, served of the distribution bay to provide preferred and backup station service.

Control Buildings

A single story, prefabricated DICM (Drop In Control Module), approximately 36 feet by 16 feet in dimension, will be installed.

Other Major Equipment

Other equipment will include surge arresters, Capacitor Voltage Transformers (CVTs), and disconnect switches.

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 an electric transmission substation and there are no occupied residences or institutions located within 100 feet of the Project.

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

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

Not applicable. The proposed Project is an electric transmission substation and there are no occupied residences or institutions located within 100 feet of the Project.

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 \$13,000,000.

B(10) Social and Economic Impacts

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

B(10)(a) 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 primary land use surrounding the site is vacant, with mature vegetation. There is an industrial use approximately 1,500 feet to the southeast of the site, and residential uses approximately 1,300 feet to the southwest and approximately 1,200 feet to the southeast of the site. Dense mature vegetation between the residences and the proposed Devola Station site will provide visual screening of the station from the residences. The proposed Devola Station will not impact existing land uses or future land use patterns near the site.

Vegetative communities within the Project Area include upland forest, scrub-shrub, and maintained lawn area. Onsite investigation indicates the permanent access road starts with ingress/egress from a parking lot, and travels through a maintained lawn area along an existing gravel two-track path leading to an early successional forest at the top of a ridge, continuing northwest to the Station site. The vegetative community along the proposed permanent access road shows signs of previous disturbance with a dense thicket of shrubs and vine.

The proposed limits of disturbance (LOD) for the Devola Station consist of upland early successional or second growth forest containing a variety of shrubs, vines, tree saplings, and a variety of larger diameter trees (diameter at breast height [dbh] between 3 and 8 inches). Wetlands were not observed within the proposed LOD. Additional habitat details are available in the Ecological Resources Inventory Report included as Appendix D.

There are no cemeteries, churches, schools, or other community facilities located within 1,000 feet of the proposed Project location. The nearest residences are approximately 1,200 feet southeast and 1,200 feet southwest of the proposed Station site (Exhibit 1-2 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 December 13, 2017. The proposed Project will be constructed on AEP Ohio Transco-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 December 2017, AEP Ohio Transco's consultant completed a Phase I Archaeological Survey and an Architectural and Historical Resources impact assessment (Appendix C). Together, these Reports address archaeological and architectural resources in the Project area. A literature review indicated that there are no formally recorded resources in the Project area.

A Phase I archaeological survey was conducted in December 2017, utilizing both pedestrian reconnaissance and shovel testing within the survey area. No archaeological sites were identified within the Project Area and no other archaeological sites were documented within the survey area; 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 survey conducted in December 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 were submitted to the Ohio Historic Preservation Office ("OHPO") on December 20, 2017. AEP Ohio Transco is waiting for a response from OHPO regarding the cultural resource work.

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

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

A Notice of Intent 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 could temporarily impact one perennial stream, an unnamed tributary to the Muskingum River, identified as SDS106 in an Appendix D table and map. The proposed access road to the Devola Station crosses this stream using the existing paved driveway installed over a culvert; the culvert may need to be replaced as part of this Project. If plans change and as necessary, AEP Ohio Transco will coordinate with the U.S. Army Corps of Engineers to determine the appropriate permits required for construction.

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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. 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 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 May 2017* (available at <https://www.fws.gov/midwest/endangered/lists/pdf/OhioCtyListMay2017.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 cyphus*; federally endangered), snuffbox (*Epioblasma triquetra*; federally endangered), eastern hellbender (*Cryptobranchus alleganiensis*; federal species of concern), timber rattlesnake (*Crotalus horridus*; federal species of concern), and bald eagle (*Haliaeetus leucocephalus*; federal species of concern).

As part of the ecological study completed for the Project, a coordination letter was submitted to the USFWS Ohio Ecological Services Field Office 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.

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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 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 CH2M within the planned disturbance area on January 10, 2017, May 18, 2017, and August 14, 2017. 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, no wetlands were delineated within the Devola Station LOD. There is one stream (unnamed tributary to Muskingum River, delineated as SDS106 in Appendix D) delineated within the Devola LOD near the southern end of the proposed permanent access road, however there are currently no plans to impact this stream (currently a culverted access road to a manufacturing facility). 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 current substation layout achieves 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.

LETTER OF NOTIFICATION FOR DEVOLA STATION PROJECT

Appendix A Project Maps

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- Legend**
- Devola Substation Footprint
 - Devola Substation Site Limits of Disturbance
 - Proposed Permanent Access Road

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

December 29, 2017

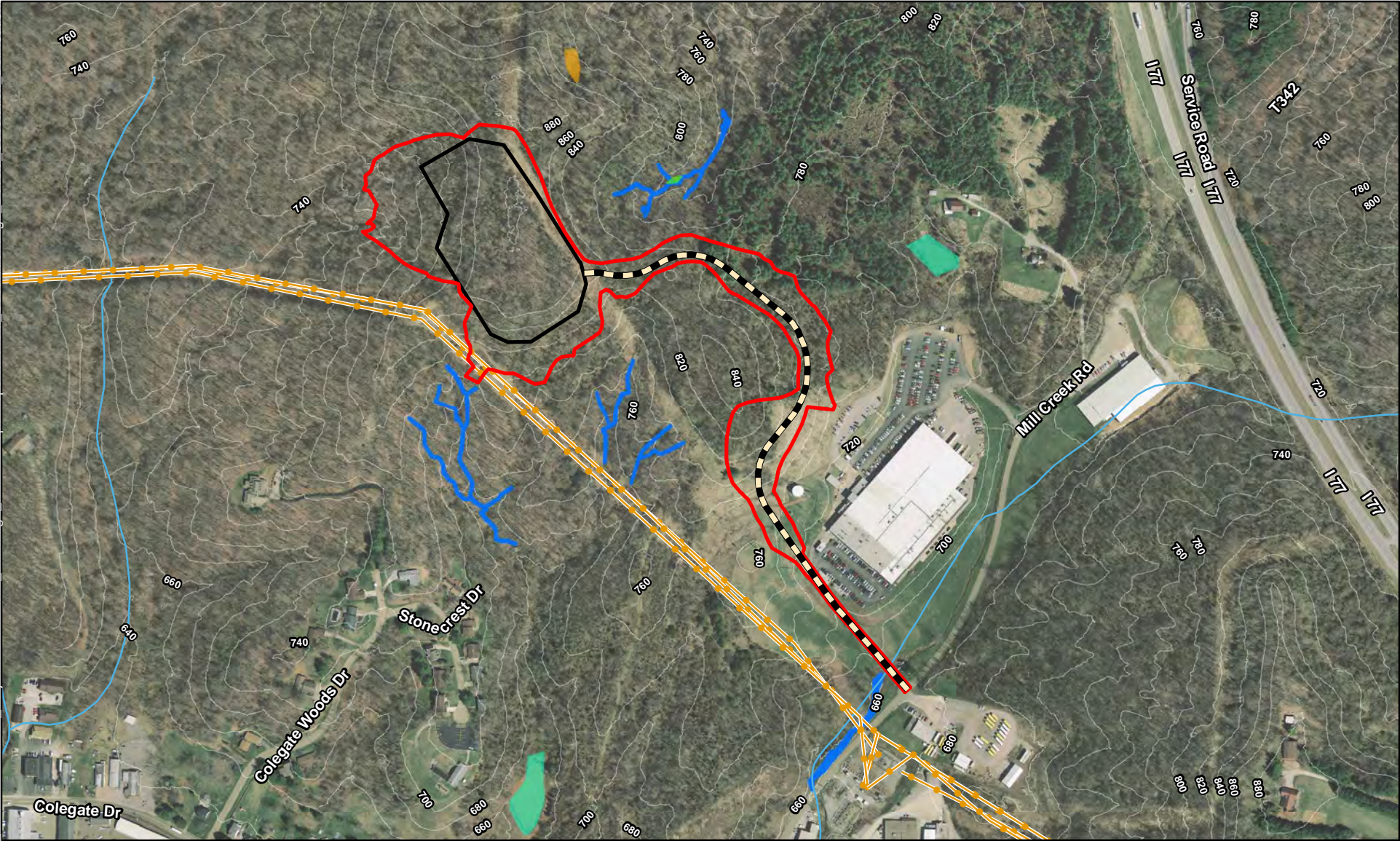


**EXHIBIT 1-1
USGS TOPOGRAPHIC MAP**

**Devola Substation
Washington County, OH**

0 500 1,000
Feet

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Legend

- Devola Substation Footprint
- Devola Substation Site Limits of Disturbance
- Proposed Permanent Access Road
- Existing Transmission Line
- Stream (NHD)
- Wetland (NWI)
- Delineated Stream
- Delineated Wetland**
- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)

BASE MAP SOURCE:
Ohio Statewide Imagery
Program, 2014

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

January 03, 2018

LOCATOR MAP

Washington County

**EXHIBIT 1-2
AERIAL IMAGERY MAP**

Devola Substation
Washington County, OH

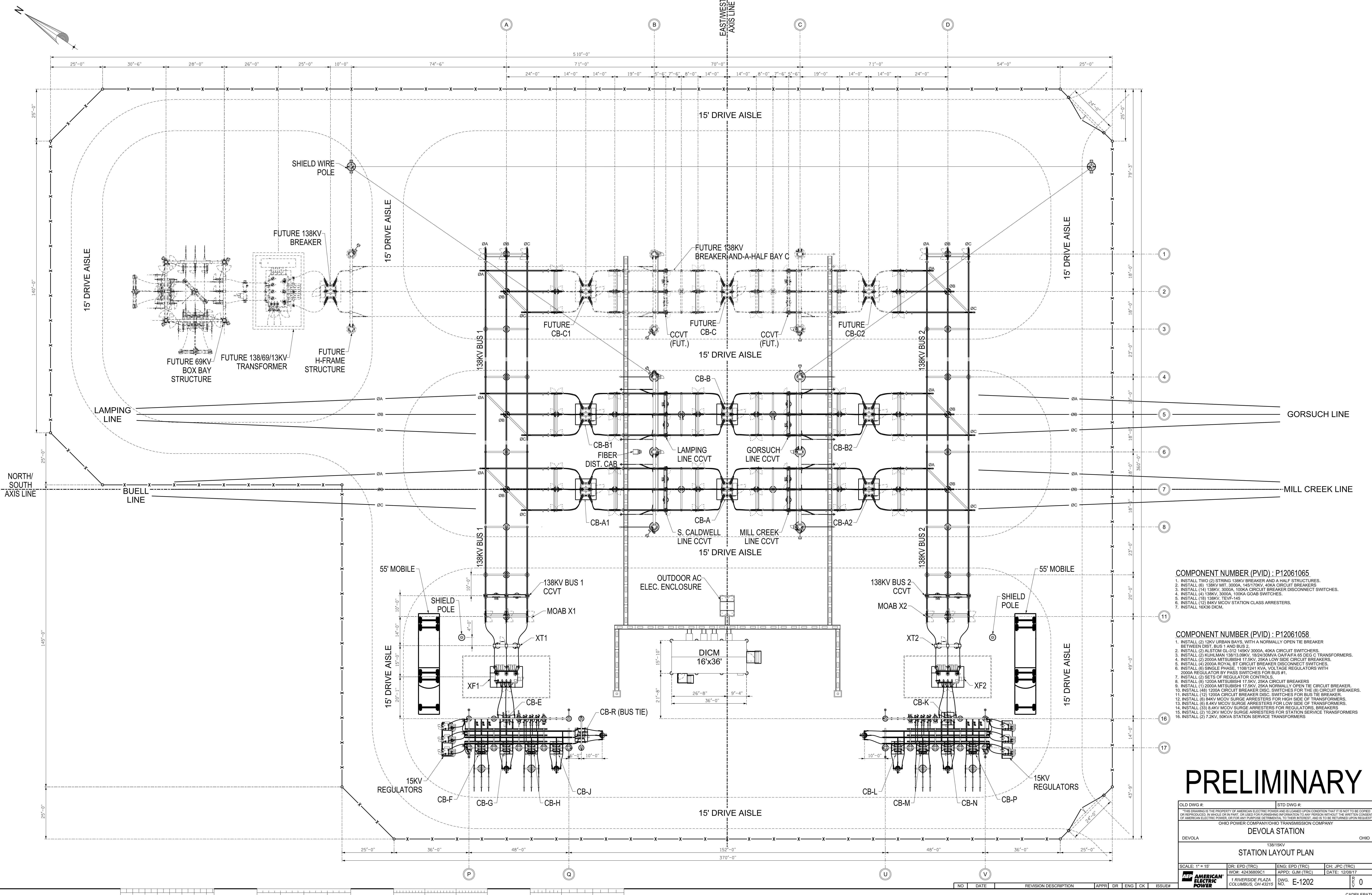
EDG/CH/ESS/EM/RYT

0 500 1,000
Feet

LETTER OF NOTIFICATION FOR DEVOLA STATION PROJECT

Appendix B Project Design Drawings

Appendix B Project Design Drawings



- COMPONENT NUMBER (PVID) : P12061065**
1. INSTALL TWO (2) STRING 138KV BREAKER AND A HALF STRUCTURES.
 2. INSTALL (6) 138KV MIT. 3000A. 145170KV. 40KA CIRCUIT BREAKERS.
 3. INSTALL (14) 138KV. 3000A. 100KA CIRCUIT BREAKER DISCONNECT SWITCHES.
 4. INSTALL (4) 138KV. 3000A. 100KA COAB SWITCHES.
 5. INSTALL (18) 138KV. TEVF-145
 6. INSTALL (12) 84KV MCOV STATION CLASS ARRESTERS.
 7. INSTALL 16X36 DICM.

- COMPONENT NUMBER (PVID) : P12061058**
1. INSTALL (2) 12KV URBAN BAYS. WITH A NORMALLY OPEN TIE BREAKER BETWEEN DIST. BUS 1 AND BUS 2.
 2. INSTALL (2) ALSTOM GL-312 145KV 3000A. 40KA CIRCUIT SWITCHERS.
 3. INSTALL (2) KUHLMANN 138/13.09KV. 102/24/20MVA OMPAFA 65 DEG C TRANSFORMERS.
 4. INSTALL (2) 2000A MITSUBISHI 17.5KV. 25KA LOW SIDE CIRCUIT BREAKERS.
 5. INSTALL (4) 2000A ROYAL BT CIRCUIT BREAKER DISCONNECT SWITCHES.
 6. INSTALL (6) SINGLE PHASE. 1108/1201 KVA. VOLTAGE REGULATORS WITH 2000A REGULATOR BY PASS SWITCHES FOR BUS #1.
 7. INSTALL (2) SETS OF REGULATOR CONTROLS.
 8. INSTALL (8) 1200A MITSUBISHI 17.5KV. 25KA CIRCUIT BREAKERS
 9. INSTALL (1) 2000A MITSUBISHI 17.5KV. 25KA NORMALLY OPEN TIE CIRCUIT BREAKER.
 10. INSTALL (48) 1200A CIRCUIT BREAKER DISC. SWITCHES FOR THE (8) CIRCUIT BREAKERS.
 11. INSTALL (12) 1200A CIRCUIT BREAKER DISC. SWITCHES FOR BUS TIE BREAKER.
 12. INSTALL (8) 84KV MCOV SURGE ARRESTERS FOR HIGH SIDE OF TRANSFORMERS.
 13. INSTALL (8) 84KV MCOV SURGE ARRESTERS FOR LOW SIDE OF TRANSFORMERS.
 14. INSTALL (33) 84KV MCOV SURGE ARRESTERS FOR REGULATORS. BREAKERS
 15. INSTALL (2) 10.2KV MCOV SURGE ARRESTERS FOR STATION SERVICE TRANSFORMERS
 16. INSTALL (2) 7.2KV. 50KVA STATION SERVICE TRANSFORMERS

PRELIMINARY

OLD DWG #:	STD DWG #:						
THIS DRAWING IS THE PROPERTY OF AMERICAN ELECTRIC POWER AND IS LOANED UPON CONDITION THAT IT IS NOT TO BE COPIED OR REPRODUCED IN WHOLE OR IN PART. OR USED FOR FURNISHING INFORMATION TO ANY PERSON WITHOUT THE WRITTEN CONSENT OF AMERICAN ELECTRIC POWER. OR FOR ANY PURPOSE DETRIMENTAL TO THEIR INTEREST. AND IS TO BE RETURNED UPON REQUEST.							
OHIO POWER COMPANY/OHIO TRANSMISSION COMPANY							
DEVOLA STATION							
138/15KV							
STATION LAYOUT PLAN							
SCALE: 1" = 16'	DR: EPD (TRC) ENG: EPD (TRC) CH: JPC (TRC)						
WORK: 4243889R1	APPRO: GJM (TRC) DATE: 12/08/17						
1 RIVERSIDE PLAZA COLUMBUS, OH 43215	DWG. NO.: E-1202						
NO.	DATE	REVISION DESCRIPTION	APPR.	DR.	ENG.	CK.	ISSUER
							0

PLOTTED BY: SUSERS ON: CDMMWYYY AT: HHMM STATION ENGINEERS CADFILEPATH

LETTER OF NOTIFICATION FOR DEVOLA STATION PROJECT

Appendix C Ecological Resources Inventory Report

Appendix C Architectural and Historical Resources Report



**Phase I Archaeological Investigations for the 7 ha (17.4 ac)
Devola Substation Project in Muskingum Township,
Washington County, Ohio**

Ryan J. Weller

December 19, 2017

1395 West Fifth Ave.
Columbus, OH 43212
Phone: 614.485.9435
Fax: 614.485.9439
Website: www.wellercrm.com

**Phase I Archaeological Investigations for the 7 ha (17.4 ac)
Devola Substation Project in Muskingum Township,
Washington County, Ohio**

By

Ryan J. Weller

Submitted By:

**Ryan J. Weller, P.I
Weller & Associates, Inc.
1395 West Fifth Ave.
Columbus, OH 43212
Phone: 614.485.9435 Fax: 614.485.9439**

Prepared For:

**American Electric Power
700 Morrison Road
Gahanna, OH 43230**

Lead Agency:

Ohio Power Siting Board



Ryan Weller, P.I.

December 19, 2017

Abstract

In December 2017, Weller & Associates, Inc. conducted Phase I Archaeological Investigations for the 7 ha (17.4 ac) Devola Substation Project in Muskingum Township, Washington County, Ohio. These investigations were conducted for American Electric Power and were prepared for submittal to the Ohio Power Siting Board. These investigations involved subsurface testing and visual inspection; much of the subject area was found to be in steeply sloping terrain or disturbed. A cultural resources management (CRM) survey was conducted in a manner that is reflective to Section 106 of the National Historic Preservation Act to identify any sites or properties relative to this project and to evaluate them for the National Register of Historic Places (NRHP). The archaeological work involved a literature review and field investigations; the history/architectural component of these investigations is contained in a separate document. These investigations did not result in the identification of any cultural materials.

The project area is located in an upland setting that is to the east of the Muskingum River Valley. This area is lowly populated and the majority of the area that was subject to survey was contained in steeply sloping conditions. The project plans involve the installation/construction of the Devola Station, transmission line easement adjustment, and associated access corridors. Generally, the project is located to the south of State Route 821, west of Interstate 77, northeast of Colgate Road, and east of State Route 60/Muskingum River.

The literature review that was conducted for this project did not indicate that there were any definitive previously recorded archaeological resources within the project's study area. There is an excavated mound indicated in the nearby terrain or in close proximity (Mills 1914). Review of an early twentieth century atlas suggests a former residence may be possible in the northern part of the project. Otherwise, there are no formally recorded resources in the project area.

The field investigations were focused on the archaeological aspect of the cultural resources management review. These investigations involved visual inspection of the viewshed and archaeological testing, as appropriate. The work did not result in the identification of any cultural materials and no significant cultural resources were identified in the project or its surrounding terrain. Much of the project area was found to be steeply sloped or disturbed. No further work is deemed necessary for this project as the project will not involve any significant sites or landmarks.

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Introduction

In December 2017, Weller & Associates, Inc. conducted Phase I Archaeological Investigations for the 7 ha (17.4 ac) Devola Substation Project in Muskingum Township, Washington County, Ohio (Figures 1-3). The work was completed under contract with American Electric Power (AEP). These investigations were conducted for submittal to the Ohio Power Siting Board (OPSB). The survey is to identify any sites or properties and to evaluate them relative to the National Register of Historic Places (NRHP) in a manner that is reflective of Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 [36 CFR 800]). This report summarizes the results of the fieldwork and literature review. The report format and design are similar to that established in *Archaeology Guidelines* (Ohio State Historic Preservation Office [OHPO] 1994).

Chad Porter conducted the literature review on December 18, 2017. Ryan Weller served as the Senior Project Manager/ Principal Investigator. The field crew included Joshua Engle and Jamie Vosvick. The report preparation was by Ryan Weller, Alex Thomas, and Chad Porter.

Project Description

The project will include the installation of the new Devola substation, which is planned within an approximately 7 ha (17.4 ac) area. Included in this project are access roads and a Devola-Mill Creek transmission line. The access corridors are expected to be about 9.1 m (30 ft) wide and are estimated to be about 1.4 km (.9 mi) long. There planned transmission line will be about .4 miles long and have a survey corridor that is 30.5 m (100 ft) wide. The proposal accounts for archaeological investigations as well as history/architectural components; the reporting documents will be prepared separately.

Environmental Setting

Climate

Washington County, like all of Ohio, has a continental climate, with hot and humid summers and cold winters. About 99 cm (39 in) of precipitation fall annually on the county with the average monthly precipitation about 8 cm (3.3 in). February is the driest month, while July tends to be the wettest month for Washington County [United States Department of Agriculture, Soil Conservation Service (USDA, SCS) 1977 (2017)].

Physiography, Relief, and Drainage

Washington County is located within the Allegheny Plateaus physiographic region of Ohio. More specifically, the project is located on the Marietta Plateau physiographic region. This region is characterized by “dissected, high relief plateau, remnants of ancient lacustrine clay-filled Teays drainage system common, elevations 515-1400 ft” (Brockman 1998). The project area is principally drained by unnamed tributaries of the Muskingum River. The northernmost aspect of the project is drains to

Second Creek, a named tributary of the river. The project is in an upland setting where deep alluvial soils are not expected.

Geology

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

Soils

The portion of the project area that is within the Upshur-Vandalia Association. These are upland, unglaciated soils that typically have eroded, narrow ridge tops and steep side slopes. There are seven specific soils involved in this project (Table 1); these are mostly affiliated with upland, rugged, sloping terrain. Only the Zanesville series soil and one series of the Upshur silty clay loam (UpC) is indicated as being fully within testable slope parameters; that is, the slope is indicated as being less than 15 percent. The majority of the project area is considered to be fully disturbed or sloped. There are no deep, alluvial soils anticipated from this project (USDA, SCS 2017).

Table 1. Soils in the Project Area.			
Soil Symbol	Soil Name	% Slope	Location
DsG	Dekalb and Gilpin stony soils	25-70	Steep sloped areas
UpC	Upshur silty clay loam	6-12	Side slopes
UpD	Upshur silty clay loam	12-18	Side slopes
UpE	Upshur silty clay loam	15-25	Side slopes
UsF	Upshur-Gilpin complex	25-35	Steep sloped areas
VaF	Vandalia silty clay loam	25-35	Steep sloped areas
ZnB	Zanesville silt loam	3-8	Ridge tops

Flora

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

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

The northwestern Ohio terrain is nearly flat because of ancient glacial lakes and glaciation, which affected the flora. However, the vegetation was more diverse than the till plain to the south and east because of the variety of factors that contributed to its terrain. Forests within the Black Swamp were generally comprised of elm/ash stands; however, dissected areas along drainages and drier, elevated areas from beach deposits would contain mixed forests of oak and hickory (Gordon 1966, 1969). There was little upland floral diversity in the lake plains (Black Swamp region) except for the occasional patches of oak and hickory. Floral variety was most evident in narrow sleeves along larger stream valleys where there was relief.

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

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

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

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

Fauna

The upland forest zone offered a diversity of mammals to the prehistoric diet. This food source consisted of white-tailed deer, black bear, Eastern cottontail rabbit, opossum, a variety of squirrels, as well as other less economically important mammals. Several avian species were a part of the upland prehistoric diet as well (i.e. wild turkey, quail, ruffed grouse, passenger pigeon, etc.). The lowland zone offered significant species as well. Raccoon, beaver, and muskrat were a few of the mammals, while wood duck and wild goose were the economically important birds. Fishes and shellfish were also an integral part of the prehistoric diet. Ohio muskellunge, yellow perch, white crappie, long nose gar, channel catfish, pike, and sturgeon were several of the fish,

whereas, the Ohio naiad mollusc, butterfly's shell, long solid, common bullhead, knob rockshell, and cod shell were the major varieties of shellfish. Reptiles and amphibians, such as several varieties of snakes, frogs, and turtles, were also part of the prehistoric diet (Trautman 1981; Lafferty 1979; Mahr 1949).

Cultural Setting

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

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

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

The Middle Archaic period (8000-6000 B.P.) is poorly known or understood in archaeological contexts within Ohio. Some (e.g., Justice 1987) regard small bifurcate

points as being indicative of this period. Ground stone artifacts become more prevalent at this time. Other hafted bifaces exhibit large side notches with squared bases, but this same trait can extend back to the Paleoindian period. The climate at this time is much like that of the modern era. Middle Archaic period subsistence tended to be associated with small patch foraging that involved a consistent need for mobility with a shift towards stream valleys (Stafford 1994). Sites encountered from this time period throughout most of Ohio tend to be lithic scatters or isolated finds. The initial appearance of regional traits may be apparent at this time.

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

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

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

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

The Middle Woodland period (ca 2200-1600 B.P.) is often considered to be equivalent with the Hopewell culture. The largest earthworks in Ohio date from this period. There is dramatic increase in the appearance of exotic materials that appear most often in association with earthworks and burials. Artifacts representative of this period include thinner, grit-tempered pottery, dart-sized projectile points (Lowe Flared, Steuben,

Snyders, and Chesser) [Justice 1987], exotic materials (mica, obsidian, and marine shell, etc.). The points are often thin, bifacially beveled, and have flat cross sections. There seems to have been a marked increase in the population as well as increased levels of social organization. Middle Woodland sites seem to reflect a seasonal exploitation of the environment. There is a notable increase in the amount of Eastern Agricultural Complex plant cultigens, including chenopodium, knotweed, sumpweed, and little barley. This seasonal exploitation may have followed a scheduled resource extraction year in which the populations moved camp several times per year, stopping at known resource extraction loci. Middle Woodland land use appears to center on the regions surrounding earthworks (Dancey 1992; Pacheco 1996); however, there is evidence of repeated occupation away from earthworks (Weller 2005a). Household structures at this time vary with many of them being squares with rounded corners (Weller 2005a). Exotic goods are often attributed to funerary activities associated with mounds and earthworks. Utilitarian items are more frequently encountered outside of funerary/ritual contexts. The artifact most diagnostic of this period is the bladelet, a prismatic and thin razor-like tool, and bladelet cores. Middle Woodland remains are more commonly recovered from central Ohio south and lacking from most areas in the northern and southeastern part of the state.

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

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

from this period, but those that have are typically rounded or circular (Pratt and Bush 1981; Weller 2005b).

Monongahela phase sites date to the Late Prehistoric to Contact period in eastern Ohio. Monongahela sites are typically located on high bottomlands near major streams, on saddles between hills, and on hilltops, sometimes a considerable distance from water sources. Most of these sites possessed an oval palisade, which surrounded circular house patterns. Burials of adults are usually flexed, and burial goods are typically ornamental. A large variety of stone and bone tools are found associated with Monongahela sites. Monongahela pottery typically is plain or cordmarked with a rounded base and a gradually in-sloping shoulder area. Few Euro-American trade items have been found at Monongahela sites (Drooker 1997).

Protohistoric to Settlement

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

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

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

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

In 1763, the Seven Years' War fought between France and Britain, also known as the French and Indian War ended with The Treaty of Paris. In this Peace of Paris, the French ceded their claims in the entire Ohio region to the British. When the American Revolution ended with the Second Treaty of Paris in 1783, the Americans gained the entire Ohio region from the British; however, they designated Ohio as Indian Territory. Native Americans were not to move south of the Ohio River, but Americans were encouraged to head west into the newly acquired land to occupy and govern it (Tanner 1987).

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

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

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

Washington County History

In 1788, a group of Ohio Company explorers, surveyors, and settlers, including 48 men led by General Rufus Putnam, founded Marietta (Andrews 1902; Howe 1888; Williams Bros. 1881). This was the first, permanent American settlement in the Northwest Territory. Major John Doughty had built Fort Harmer three years previous but it had been abandoned and would be rebuilt and reoccupied. Campus Martius, later to be called Marietta, was that place of entry and settlement (Andrews 1902). These men had arrived in April; Governor Arthur St. Clair followed that July to begin his governance of the Northwest Territory from this preliminary seat in the forests of Ohio (Williams Bros. 1881). Upon Governor St. Clair's arrival, he created Washington County as a subdivision of the Ohio Territory. At that time, the county was nearly half the size of the

current State. Most of the early history of Washington County however, contained itself to the present bounds and the region surrounding Marietta (Andrews 1902; Howe 1888; Williams Bros. 1881). Due to the dispute with Northwestern Indian tribes over the ownership of Ohio lands, the settlements were heavily fortified or had forts nearby (Fort Harmer, Campus Martius, Farnes Castle, Fort Freye, and Fort Tyler). Settlers followed peace into the county (Andrews 1902; Howe 1888; Williams Bros. 1881).

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

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

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

As mentioned, Marietta was the first permanent and continually occupied settlement in Ohio; moreover, within the Northwest Territory. As such, it is no surprise that this town is and always was the county seat of Washington County. Upon entering this area, the Ohio Company men discovered that the Muskingum River valley and its surrounding banks and ridge tops were teeming with prehistoric earthworks testifying to the extinct civilization who previously had built and lived in this same location. The directors of the Ohio Company admired these sites and provided for their protection and

preservation. The act creating the Town of Marietta came several years later in 1801. Dudley Woodbridge was the first storeowner in the Northwest Territory, having located on the corner of Muskingum and Ohio Streets. Many of the later stores lined the river in Marietta and Harmer. The location of Marietta on two navigable rivers made the community a center for commerce and industry early in its development. Shipbuilding was one of the first industries in Marietta and this drove the city to become an important early manufacturing and transportation hub (Andrews 1902).

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

Muskingum Township History

Muskingum Township originally was contained completely within the first lines of Adams Township set in 1798. The creation of neighboring townships portioned Adams and until 1861, modern Muskingum lands were severally under the local governments of Fearing, Marietta, and Union Townships. It was thus established April 18, 1861 after the Ohio legislature passed a bill defining its boundaries. When Union Township dissolved in 1877, Muskingum received an additional portion (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

Settlement in Muskingum had begun long before, however, correlative to the end of the Indian Wars. Three settlements are notable there: The Rainbow Settlement, The Wiseman's Bottom Settlement, and the later settlement of a region known as "the ridge" (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

The Rainbow Settlement was established April 29, 1795 on the Muskingum River. Israel Stone and his family were the first settlers of the Rainbow district, a donation tract allotment. The Stacy, Dyar, and Stowe families followed very soon after. Another settlement, Wiseman's Bottom, was so close to Rainbow, that the name is nearly the only separation. The first settlers there were Barkers, Putnams, Devols, and Russells. This area had been cleared by a man named Wiseman in attempt to make a claim on the land. He left shortly after, and his claim was not honored because the area was purchased legally by the Ohio Company. He therefore is not considered the first settler of the area, but his name lingered past Colonel Joseph Barker's initial settlement there in 1795. The settlement of the ridge, which was located in the eastern portion of the township, did not begin until much later because of the obvious advantages of the land along the river. Although there were some sporadic pioneers on the ridge before 1825, real immigration began in 1833 with a large number of Germans entering that portion of the township (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

The first schoolhouse in Muskingum Township was apparently the one in Wiseman's Bottom which received land and much support from Israel Putnam. The first teacher there was Miss Esther Levings. No dates are recorded for the erection of the schoolhouse or when Levings started teaching; however, in 1816, the location was moved

to higher ground on the same farm and a new schoolhouse, made of brick, served also as a church. The church was for the community and not affiliated with a particular domination, but there is record that the first to preach there was Joseph Willard, an Episcopal clergyman. As late as 1902, there were only two churches in the whole of Muskingum Township. One was the German dominated Evangelical Protestant Church in the ridge district. The other was a congregation of Methodist Episcopal African Americans on Rainbow Creek (Andrews 1902; William Bros 1881).

Two men are integral to the economic beginnings of the township. Colonel Joseph Baker and Captain Jonathan Devol. The industry that ties these two men in common was shipbuilding. As early as 1801 and 1802, Barker and Devol were building ocean worthy vessels out of the lumber from the forests that bordered their farms. Their work ended in 1809 when a Federal embargo act was passed. Col. Barker was certainly the more productive shipbuilder, but Devol produced much wider architecture for the community. Capt. Devol built the first mill in the township which was a floating mill in 1796. His second was a larger floating mill built in 1803 and provided a great service to the early inhabitants up and down the Muskingum. He also built a large frame flouring mill and a dam in 1807. In 1866 Major Putnam added three buhrs at Devol's Dam which was considered then the best on the river. Captain Devol later added to the importance of the mill by adding a carding mill (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

The Washington County Children's Home began in 1866 as an orphanage. It was the first in the state (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

Research Design

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

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

Archaeological Field Methods

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

Shovel test unit excavation. Shovel test units were placed at 15-m intervals. Shovel test units measure 50 cm on a side and are excavated to 10 cm below the

topsoil/subsoil interface. Individual shovel test units were documented regarding their depth, content and color (Munsell). All of the undisturbed soil matrices from shovel test units are screened using .6 cm hardware mesh.

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

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

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

Curation

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

Literature Review

The literature review study area is defined as a 305 m (1,000 ft) area centered on the project area (Figures 2 and 3). In conducting the literature review, the following resources were consulted at SHPO and the State Library of Ohio:

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

A review of *Archeological Atlas of Ohio* (Mills 1914) was conducted. There appears to be an excavated mound (Figure 4) in the vicinity of the project.

The OAI files /OHC topographic maps indicated that there are no recorded archaeological sites recorded in the study area.

The OHI files did not indicate any resources located within the project area; there are five listed in the study area (Table 2). None of these resources are adjacent to the project area. One is located to the east of an access road and the other four are positioned to the south and at the limits of the study area (Figure 2).

Table 2. Ohio Historic Inventory resources within the study area.						
<i>OHI #</i>	<i>PRESENT NAME</i>	<i>ADDRESS</i>	<i>ARCHITECTURAL STYLE</i>	<i>HISTORIC USE</i>	<i>ACTIVITY</i>	<i>DATE</i>
WAS0106817	Bonnie Landsittel House	1324 Colegate Rd T-342	Colonial Revival	Single Dwelling	Original Construction	1935
WAS0106917	Lucille Darrah House	1326 Colegate Rd T-342	Vernacular	Single Dwelling	Original Construction	1935
WAS0107017	S J Brockmeier House	1330 Colegate Rd T-342	Vernacular	Single Dwelling	Original Construction	1920
WAS0107117	Claude Cameron House	1332 Colegate Rd T-342	Vernacular	Single Dwelling	Original Construction	1900
WAS0115709	L Eugene Plummer House	T-342	Queen Anne	Single Dwelling	Original Construction	1900

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

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

Historic cartographic resources were reviewed in order to get a better understanding of past landowners and the distribution of past buildings and structures. *The Atlas of Washington County, Ohio* (Lake 1875) indicates a series of small lots extending through this area, but no buildings are noted relative to the project. The USGS *1904 Marietta, WV 15 Minute Series (Topographic)* map (Figure 5) indicates a building in the northern part of the project area; this may be in the northeastern aspect of the project area. The modern USGS *1975 Marietta, OH 7.5 Minute Series (Topographic)* map indicates upland conditions with no buildings within or near the project (Figure 2).

Literature Review Summary and Expectations

The literature review indicated few previously recorded resources in the project area or its vicinity. Mills does indicate a mound and further indicated that it had been excavated; excavated mounds relative to Mills are infrequently identified. An early twentieth century map indicates what is likely a residence just within or near the northeastern part of the project area. However, it seems unlikely that cultural materials would be identified from this survey area. The majority of the soils in this area are

contained in steeply sloped conditions. Areas associated with the planned access corridors are likely to be disturbed as these often make use of existing, graded pathways. The most likely situation for the identification of any archaeological deposits would be the ridge top where slope and soil conditions are most favorable. Intensive occupation within the project area is not expected.

Fieldwork Results

The field investigations for this project were conducted on December 18, 2017. This work was conducted during suitable, but cool weather conditions as the temperatures ranged from 35-50 degrees Fahrenheit. The fieldwork involved subsurface testing and visual inspection (Figures 5-12). The project area is located in an upland, rugged setting that is north of Marietta and is largely undeveloped. These investigations were conducted for the planned station, affected transmission line corridors, and access roads. These investigations encountered many conditions and situations that were either disturbed or steeply sloped. Even the areas that were intact, proved to be highly eroded. The fieldwork did not result in the identification of any cultural materials.

The project area is very irregularly-shaped and located in an upland setting that includes rugged conditions. The area that was subject to these investigations is largely contained in undeveloped and unimproved land. There are residences, businesses, and facilities in the valley area to the south and southwest of the project. There are cleared electric line corridors that cross through the area, one of which is central to the overall project. Deciduous forestation is the dominant floral characteristic of the area. The shovel testing was conducted in the areas/landforms that were suitable for investigations, that is, not sloped or severely disturbed.

The access corridors that were investigated for this project involved visual inspection. Expectedly, these corridors reused existing, graded pathways that appear to have been used for past logging ventures and/or for the original construction of the extant electric lines. Steeply sloping conditions or severe disturbance precluded archaeological investigations of the access corridors (Figure 6-8).

The survey for the electric transmission line was limited to visual inspection and photographic documentation. The conditions that were experienced in this corridor involved steep slope and disturbance. The disturbance appears to be associated with post-installation activities that are associated with the electric lines (Figures 6 and 9). The steepness of the slope was initially suspect upon review of the soils survey and was confirmed by the field investigations.

The physical archaeological work that was conducted for this project was limited to the planned Devola Station area (Figure 6 and 10). This area is irregularly-shaped and involves a ridge top promontory. There were 62 shovel test units and 3 shovel probes excavated in this area and these were excavated to the east and west of an electric line corridor. The testing identified topsoil deposits that are best described as being 'heavily eroded'. The topsoil was found to have a sub-angular and blocky texture. It was very compact and contained more clay than would have been expected, a reflection of erosion. The topsoil is dark brown (10YR3/3) silty clay loam. The subsoil, having similar texture

qualities, was found to be dark yellowish brown (10YR4/4) silty clay loam (Figure 12). The subsoil was notably more clayey and occasionally contained fragments of bedrock or flagstone. The interface between these two levels was irregular and broken. There were no cultural materials identified during these investigations.

The literature review for this project indicated that an excavated mound and a former residence were located in the vicinity. Visual inspection of the project and its immediate vicinity, about 7.5 m around the northern and western boundary for the station, did not identify any indications of an excavated mound (Mills 1914). A residence was indicated in the vicinity according to a cartographic reference; evidence for this occupation or building was not identified and it appears that it was likely located to the north of the project area.

There were no cultural materials identified during these investigations. The majority of the project area was found to be severely disturbed or steeply sloped. The area where subsurface testing was accomplished, a ridge top, was found to have shallow and eroded topsoil. The conditions experienced within the project area were largely not amiable for the identification of intact cultural deposits. There were no cultural materials identified during these investigations.

APE Definition and NRHP Determination

The APE is a term that must be applied on an individual project basis. The nature of the project or undertaking is considered in determining the APE. It is typically applied to federally involved undertakings, but is considered for projects to allow for a similar means of evaluation; especially if the project might involve a federal agency in the future. This may include areas that are off the property or outside of the actual project's boundaries to account for possible visual impacts. Archaeological investigations are typically limited to the footprint of the construction activity and a limited area around it if deemed appropriate and depending upon the type of construction. The project plans involve the rebuilding of a small section of an existing electric line, the use and development built access corridors, and an electric station installation. Many of the access corridors make use of existing, graded drives, or logging roads. This project is located in a steep, upland setting as well as deciduous forestation. These investigations did not identify any significant archaeological deposits, no archaeological sites were identified.

Considering the footprint of the project construction and what is regarded as the archaeological APE, a finding similar to 'no historic properties' or landmarks affected is deemed appropriate.

Recommendations

In December 2017, Weller & Associates, Inc. conducted Phase I Archaeological Investigations for the Devola Substation Project in Muskingum Township, Washington County, Ohio. These archaeological field investigations involved subsurface testing and visual inspection. The field investigations did not identify any cultural materials. It is Weller's opinion that this project will not affect any significant archaeological sites or

historic properties. A recommendation of no further work is considered and a consideration 'no historic properties or landmarks affected' is appropriate.

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Figures

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

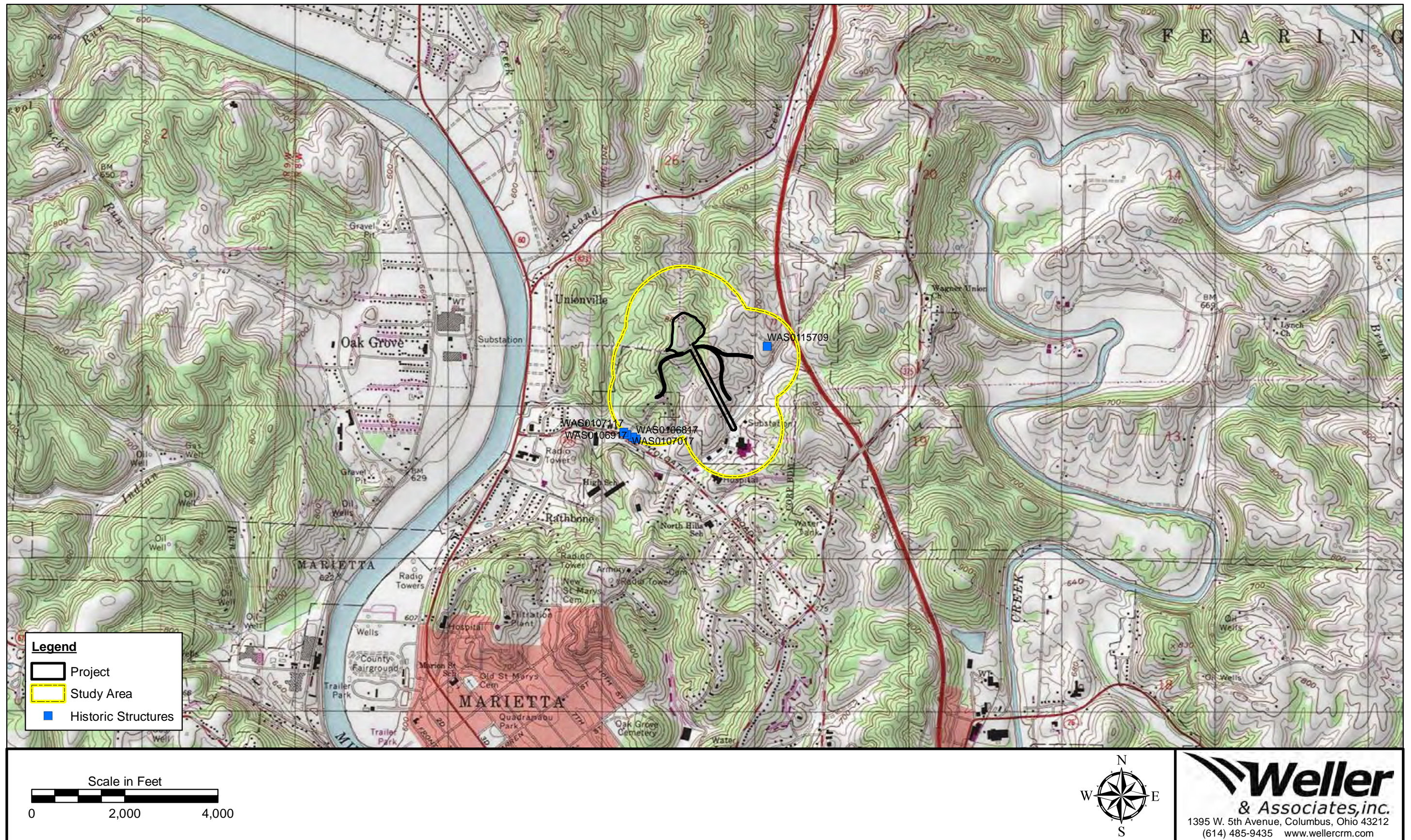


Figure 2. Portion of the USGS 1975 Marietta, Ohio 7.5 Minute Series (Topographic) map indicating the location of the project and previously recorded resources in the study area.

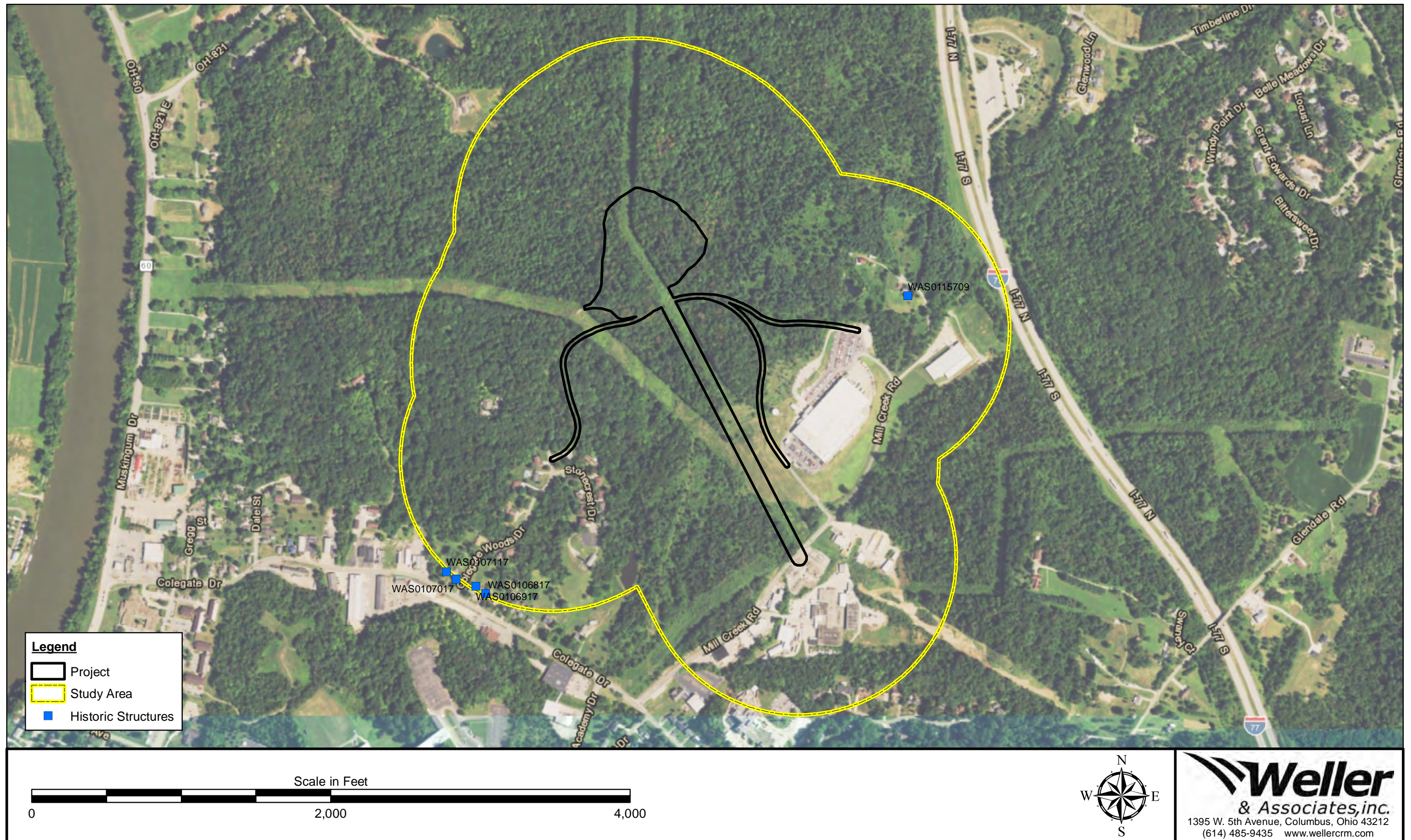


Figure 3. Aerial map indicating the location of the project and previously recorded resources in the study area.

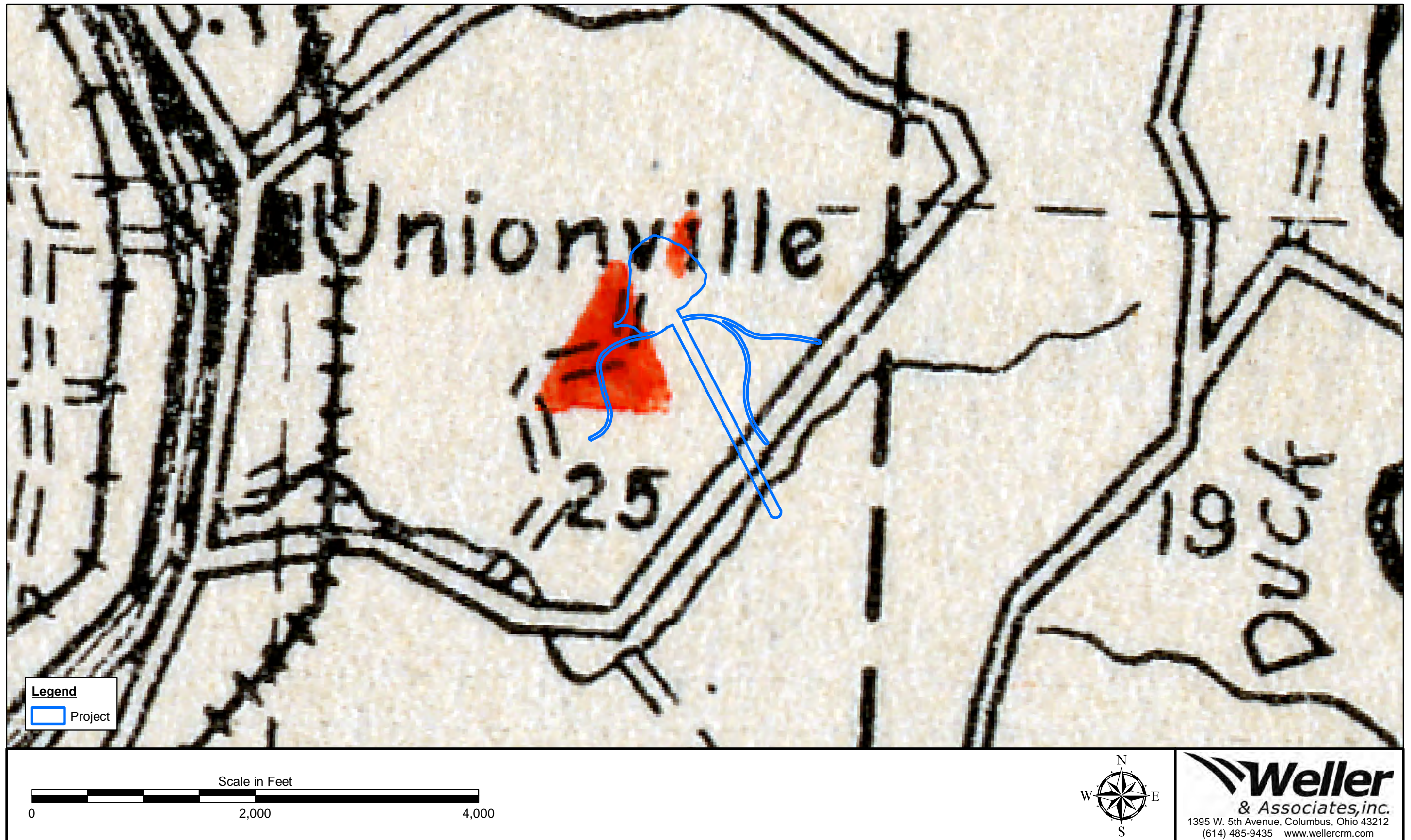


Figure 4. Portion of the *Archeological Atlas of Ohio (Mills' 1914)* indicating the approximate location of the project.

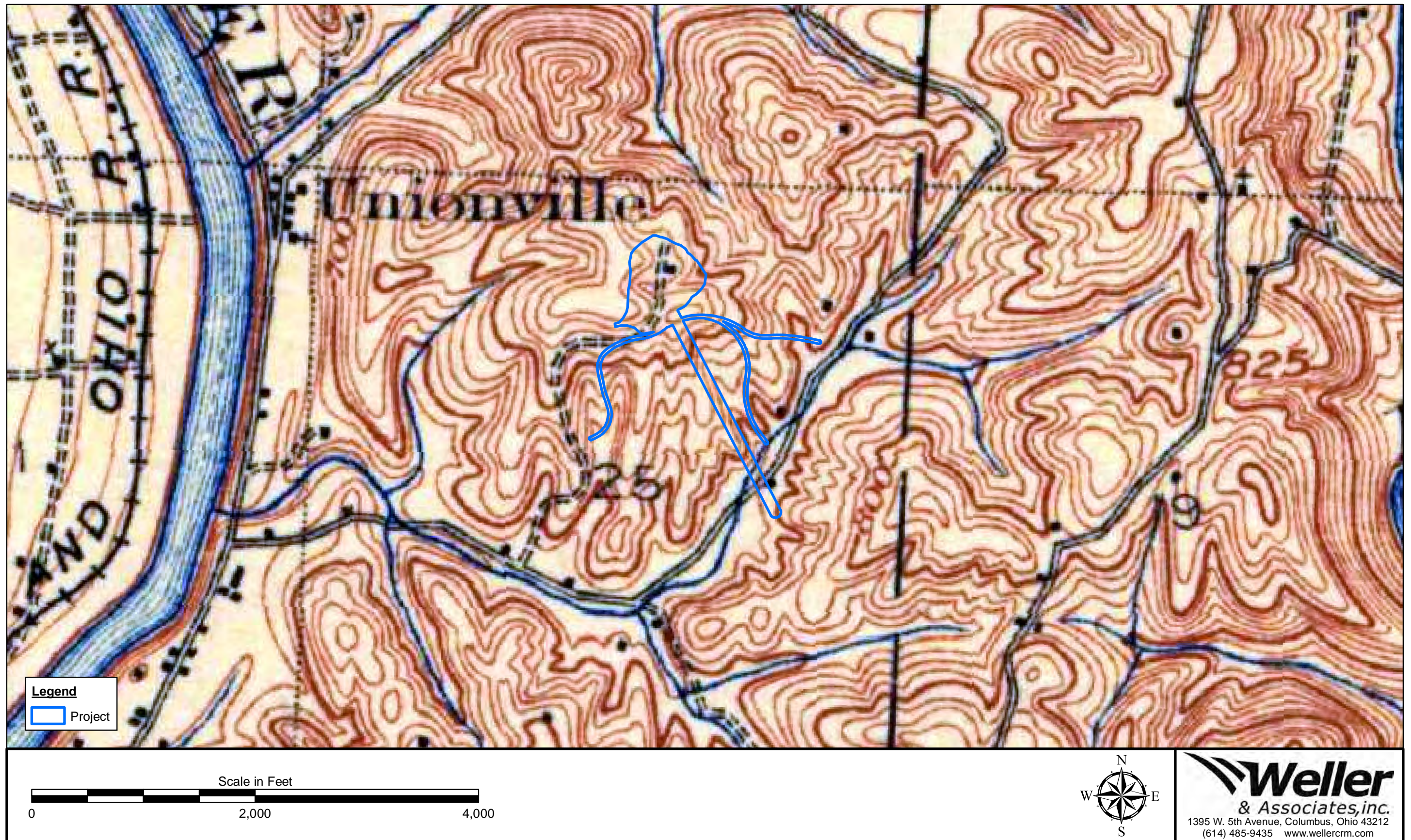


Figure 5. Portion of the USGS 1904 Marietta, Ohio 15 Minute Series (Topographic) map indicating the approximate location of the project.

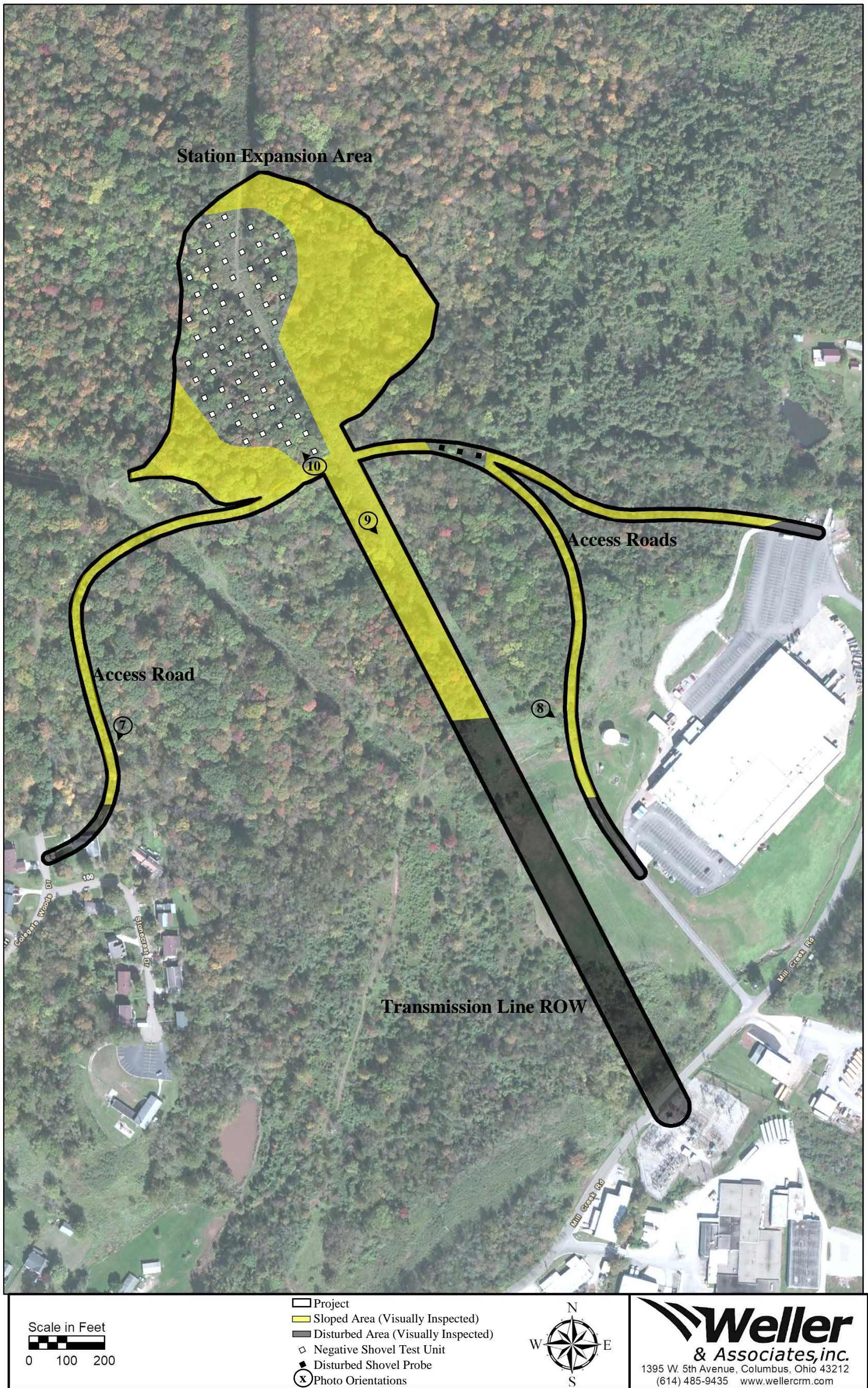


Figure 6. Aerial fieldwork map of the project indicating the results of testing and photo orientations.



Figure 7. Typical conditions within the western access corridor.



Figure 8. Typical sloped and disturbed conditions within the eastern access corridors.



Figure 9. Sloped and disturbed conditions within the transmission line ROW.



Figure 10. Conditions within the station expansion area.



Figure 11. View of an eroded/disturbed shovel probe from the project.

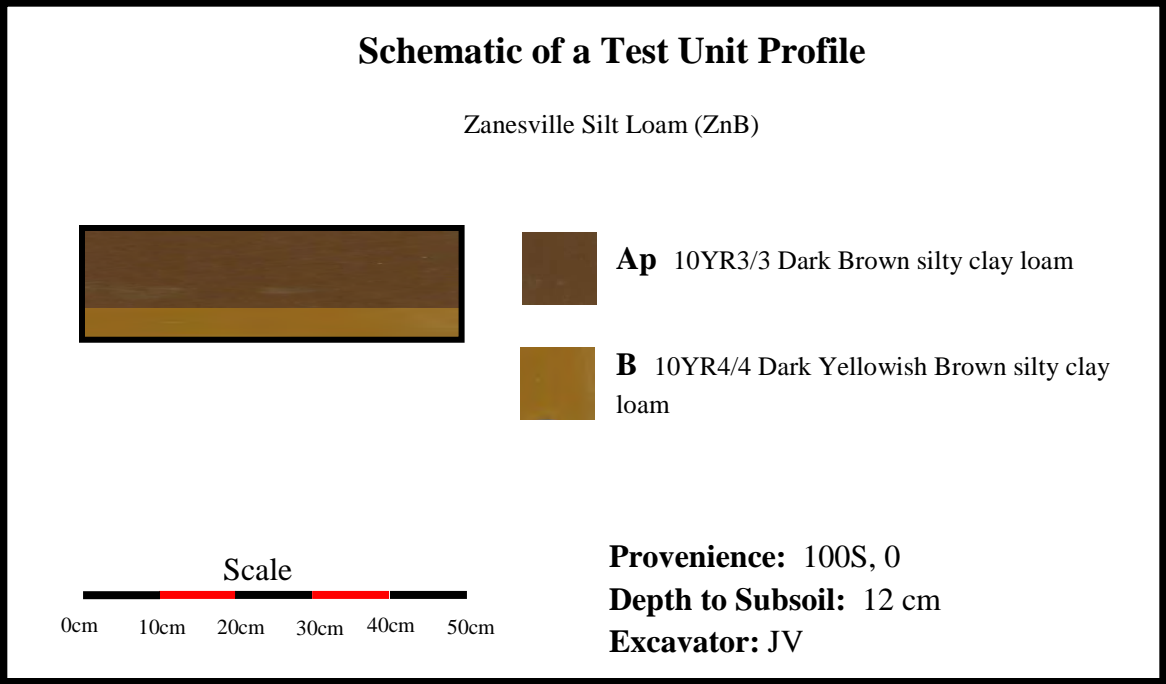


Figure 12. A typical shovel test unit excavated within the project.



**History/Architecture Investigations for the 5.6 ha (14 ac)
Devola Substation Project in Muskingum Township,
Washington County, Ohio**

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**History/Architecture Investigations for the 5.6 ha (14 ac)
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Abstract

In December of 2017, Weller & Associates, Inc. conducted History/Architecture Investigations for the 5.6 ha (14 ac) Devola Substation Project in Muskingum Township, Washington County, Ohio. These investigations were completed for American Electric Power for submittal to the lead agency, the Ohio Power Siting Board. The project will include the installation of the new Devola substation, which is planned to be approximately 4 ha (10 ac) area. Included in this project are access roads and the Devola-Mill Creek transmission line. The planned transmission line will be approximately 0.4 miles long and will have a survey corridor that is 30.5 m (100 ft) wide.

The investigations, including a background literature review and intensive field survey, were conducted in accordance with the guidelines set forth by the Ohio State Historic Preservation Office and Ohio Administrative Code Chapter 4906-15-06(F), which concerns socioeconomic and land use impact analysis in applications for certificates for electric transmission facilities through the Ohio Power Siting Board.

The investigations were conducted in two parts: a history/architecture survey and an archaeological investigation. This report covers the results of the history/architecture survey of the entire area that may be affected by the proposed development of the project. The history/architecture investigations consisted of a systematic survey of all properties 50 years of age or older that are situated within the project area or have a viewshed of the proposed project area. The results of the archaeological investigations will be presented in a separate report.

The project is subject to Ohio Power Siting Board Application requirements under Chapter 4906 of the Ohio Revised Code. The project is subject to Ohio Power Siting Board Application requirements under Chapter 4906 of the Ohio Revised Code. The project study area included six buildings 50 years of age or older constructed in the 1950's and 1960's. All of the identified resources were found to be clearly not eligible for the NRHP under Criteria A, B, or C due to a lack of associative significance, a loss of integrity, or a lack of character defining features. The resources are all Vernacular in style, and have experienced multiple alterations that have compromised their historic integrity. Weller & Associates, Inc. therefore recommends a finding of 'no historic properties affected'.

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Introduction

In December of 2017, Weller & Associates, Inc. conducted History/Architecture Investigations for the 5.6 ha (14 ac) Devola Substation Project in Muskingum Township, Washington County, Ohio (Figures 1-3). The work was conducted under contract with American Electric Power (AEP) pursuant to documentary requirements for the Ohio Power Siting Board (OPSB). The investigations were conducted in accordance with the guidelines set forth by the Ohio State Historic Preservation Office and Ohio Administrative Code Chapter 4906-15-06(F), which concerns socioeconomic and land use impact analysis in applications for certificates for electric transmission facilities through the Ohio Power Siting Board. The work efforts were designed to evaluate pertinent cultural resources for the National Register of Historic Places (NRHP) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 [36 CFR 800]). This report summarizes the results of the fieldwork and literature review.

A literature review was completed on December 6, 2017. Timothy Miller served as the Principal Investigator for the History/Architecture portion of this project. The Geographic Information Systems (GIS) mapping and figures for this report were generated by Alex Thomas, Jacquelyn Lehmann, and Timothy Miller.

Project Description

The project will include the installation of the new Devola substation, which is approximately 4 ha (10 ac) area. Included in this project are access roads and the Devola-Mill Creek transmission line. The planned transmission line will be approximately 0.4 miles long and will have a survey corridor that is 30.5 m (100 ft) wide.

Research Design

The purpose of the history/architecture portion of the project was to identify any historic properties in the area that may be affected by the proposed development of the project. These effects may be direct or indirect. Direct effects occur within the boundaries of the project, while indirect effects can occur for areas outside the direct boundaries and can include visual, audible, and atmospheric effects that are associated with the development of the project. Based on the nature of the project, the history/architecture investigations consisted of a systematic survey of all properties 50 years of age or older that are situated within or have a potential view of the proposed project.

Methods

This survey was conducted following the guidelines established in *Archeology and Preservation: Secretary of the Interior's Standards and Guidelines* (National Park Service 1983) and *Guidelines for Local Surveys: A Basis for Preservation Planning. National Register Bulletin No. 24* (National Park Service 1997). When properties are identified, they are subjected to the guidelines outlined in *National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation* (National Park Service 1996).

There are four criteria for eligibility to be listed in the National Register of Historic Places (NRHP). Only one of these criteria must be met to be considered eligible for listing; however, oftentimes more than one of the criteria is met. The criteria for significance include:

- A. Association with historic events or patterns of events;
- B. Association with persons important to our past;
- C. Exceptional or important architectural characteristics; and/or
- D. Data potential.

Architectural properties typically qualify under Criteria A, B, or C. Criterion D is typically reserved for archaeological sites.

In addition to meeting at least one of the established criteria, the appropriate integrity must also be retained by the resource. There must be integrity of location, design, workmanship, setting, materials, feeling, and association.

Prior to commencing fieldwork, a literature review was conducted to determine if any previously recorded architectural properties, NRHP properties, or Ohio Genealogical Society cemeteries were present within the APE. Historic maps were also reviewed to aid in guiding the fieldwork and detecting the possible presence of properties 50 years of age or older within the APE. Background research was also conducted in order to establish a historic context of the region. The context was compiled by utilizing materials from the SHPO, archival materials at the respective county courthouses, local libraries, and several online resources. The establishment of the historic context helped to guide the interpretation of the field survey results.

The field survey included a systematic approach to identifying all properties 50 years of age or older within the project area or that have a potential view of the proposed project. Some areas will be blocked from having a direct line-of-sight to the proposed project by topography and forested areas. The areas that did not have a direct line-of-sight to the project were visually verified in the field and the survey did not include all of these areas. An advantage for this project is the presence of an existing line to gauge the direct line-of-sight from properties through field verification during the survey. Each property identified within the survey area that will have a direct line-of-sight was photographed and annotated on appropriate mapping and included in the report. Each property identified within the survey area was photographed and annotated on appropriate mapping and included in the report. The approach was to identify those properties with NRHP potential, followed by a more intensive documentation and evaluation of those potentially eligible aboveground resources. The comprehensive survey involved recording of each property 50 years of age or older to a baseline level of documentation.

Weller focused on the ground plan, the height, and the roof configuration of each structure, noting all visible materials, appendages, extensions, or other alterations. Housing types and structural details within the report and utilized on OHI forms follow the terminology used by geographers Jakle, Bastian, and Meyer (1988), architectural

historians McAlester and McAlester (1992), and Gordon (1992). Weller then supplemented the field survey data with an examination of available tax records, aerial photographs, and cartographic sources.

A summary and analysis of the field data detailing the overall architectural character of the survey APE is included as a narrative in the report. Weller historians analyzed the data and identified properties that are clearly not eligible for the NRHP due to a lack of significance or loss of integrity, as well as identified potential NRHP properties and advanced them to a more advanced level of documentation and evaluation.

Definitions

Within this report, an *architectural resource* is defined as aboveground buildings or structures that are 50 years of age or older. A *historic property* is defined as a building, structure, object, or site that is listed in, or considered eligible for listing in, the NRHP. An *effect* is defined as an activity associated with the project that alters a characteristic of a historic property that qualified it for inclusion in the NRHP.

Historic Context

Washington County History

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

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

Pierce. These were books belonging to General Israel Putnam which were removed to Ohio after his death in 1795, by his son Colonel Israel Putnam. As such, it was known first as the Putnam Library, but later as the Belpre Library or the Belpre Farmer's Library.

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

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

As mentioned, Marietta was the first permanent and continually occupied settlement in Ohio; moreover, within the Northwest Territory. As such, it is no surprise that this town is and always was the county seat of Washington County. Upon entering this area, the Ohio Company men discovered that the Muskingum River valley and its surrounding banks and ridge tops were teeming with prehistoric earthworks testifying to the extinct civilization who previously had built and lived in this same location. The directors of the Ohio Company admired these sites and provided for their protection and preservation. The act creating the Town of Marietta came several years later in 1801. Dudley Woodbridge was the first storeowner in the Northwest Territory, having located on the corner of Muskingum and Ohio Streets. Many of the later stores lined the river in Marietta and Harmer. The location of Marietta on two navigable rivers made the community a center for commerce and industry early in its development. Shipbuilding was one of the first industries in Marietta and this drove the city to become an important early manufacturing and transportation hub (Andrews 1902).

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

Muskingum Township History

Muskingum Township originally was contained completely within the first lines of Adams Township set in 1798. The creation of neighboring townships portioned Adams and until 1861, modern Muskingum lands were severally under the local governments of Fearing, Marietta, and Union Townships. It was thus established April 18, 1861 after the Ohio legislature passed a bill defining its boundaries. When Union Township dissolved in 1877, Muskingum received an additional portion (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

Settlement in Muskingum had begun long before, however, correlative to the end of the Indian Wars. Three settlements are notable there: The Rainbow Settlement, The Wiseman's Bottom Settlement, and the later settlement of a region known as "the ridge" (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

The Rainbow Settlement was established April 29, 1795 on the Muskingum River. Israel Stone and his family were the first settlers of the Rainbow district, a donation tract allotment. The Stacy, Dyar, and Stowe families followed very soon after. Another settlement, Wiseman's Bottom, was so close to Rainbow, that the name is nearly the only separation. The first settlers there were Barkers, Putnams, Devols, and Russells. This area had been cleared by a man named Wiseman in attempt to make a claim on the land. He left shortly after, and his claim was not honored because the area was purchased legally by the Ohio Company. He therefore is not considered the first settler of the area, but his name lingered past Colonel Joseph Barker's initial settlement there in 1795. The settlement of the ridge, which was located in the eastern portion of the township, did not begin until much later because of the obvious advantages of the land along the river. Although there were some sporadic pioneers on the ridge before 1825, real immigration began in 1833 with a large number of Germans entering that portion of the township (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

The first schoolhouse in Muskingum Township was apparently the one in Wiseman's Bottom which received land and much support from Israel Putnam. The first teacher there was Miss Esther Levings. No dates are recorded for the erection of the schoolhouse or when Levings started teaching; however, in 1816, the location was moved to higher ground on the same farm and a new schoolhouse, made of brick, served also as a church. The church was for the community and not affiliated with a particular domination, but there is record that the first to preach there was Joseph Willard, an Episcopal clergyman. As late as 1902, there were only two churches in the whole of Muskingum Township. One was the German dominated Evangelical Protestant Church in the ridge district. The other was a congregation of Methodist Episcopal African Americans on Rainbow Creek (Andrews 1902; William Bros 1881).

Two men are integral to the economic beginnings of the township. Colonel Joseph Baker and Captain Jonathan Devol. The industry that ties these two men in common was shipbuilding. As early as 1801 and 1802, Barker and Devol were building ocean worthy vessels out of the lumber from the forests that bordered their farms. Their work ended in 1809 when a Federal embargo act was passed. Col. Barker was certainly

the more productive shipbuilder, but Devol produced much wider architecture for the community. Capt. Devol built the first mill in the township which was a floating mill in 1796. His second was a larger floating mill built in 1803 and provided a great service to the early inhabitants up and down the Muskingum. He also built a large frame flouring mill and a dam in 1807. In 1866 Major Putnam added three buhrs at Devol’s Dam which was considered then the best on the river. Captain Devol later added to the importance of the mill by adding a carding mill (Andrews 1902; Marietta Daily Times 1938; William Bros 1881). The Washington County Children’s Home began in 1866 as an orphanage. It was the first in the state (Andrews 1902; Marietta Daily Times 1938; William Bros 1881).

Architectural Fieldwork Results

The field investigations for this project were conducted on December 7, 2017. No previously recorded resources were identified within the project or survey area. The project viewshed consisted of woodlands surrounded by a mixture of suburban residential homes and industrial properties (Figures 6-13). The viewshed of the project consists of the industrial area adjacent to the access road on Mill Creek Road. The station project area is surrounded by woodlands. The access road is in an industrial area that has surrounding suburban housing development. The survey APE outside the immediate viewshed consists of two housing developments that date to the late 1960s. S-1 is a severely altered vernacular industrial building built in about 1965. S-2 is a severely altered vernacular concrete block industrial building built in 1954. The S-2 factory has the unique business of manufacturing the aluminum historic markers in every state. S-3 is a severely altered vernacular metal industrial building built in 1952. S-4 is an altered vernacular concrete block industrial building built in 1954. S-5 is an altered vernacular brick ranch house built in 1967. S-6 is an altered vernacular brick split level house built in 1966. All of the resources have been altered by siding, replacement windows, replacement doors, or additions. All of the identified resources were found to be clearly not eligible for the NRHP under Criteria A, B, or C due to a lack of associative significance, a loss of integrity, or a lack of character defining features. The resources are all vernacular in style, and have experienced multiple alterations that have compromised their historic integrity.

Table 1. Field Survey Results

Field #	County	Figure	Classification	Date	Stylistic Influence	Type	NRHP Status
S-1	Washington	Figure 5	Building	Ca.1965	Vernacular	Industrial	Not Eligible
S-2	Washington	Figure 5	Building	1954	Vernacular	Industrial	Not Eligible
S-3	Washington	Figure 5	Building	1952	Vernacular	Industrial	Not Eligible

S-4	Washington	Figure 5	Building	1954	Vernacular	Industrial	Not Eligible
S-5	Washington	Figure 5	Building	1967	Vernacular	Ranch	Not Eligible
S-6	Washington	Figure 5	Building	1966	Vernacular	Split Level	Not Eligible

APE Definition and NRHP Determination

The APE is a term that must be applied on an individual project basis. The nature of the project or undertaking is considered in determining the APE. This may include areas that are off the property or outside of the actual project’s boundaries to account for possible visual impacts. The APE for this project includes the footprint of the project and the viewshed surrounding the project area. There are no above-ground resources that are within the project area. No structures within the APE are eligible for inclusion on the NRHP.

Recommendations

In December of 2017, Weller & Associates, Inc. conducted History/Architecture Investigations for the Devola Substation Project in Muskingum Township, Washington County, Ohio. These investigations did not result in the identification of any historic properties. Weller recommends a finding of “no historic properties affected”. No further cultural resource management work is considered necessary.

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Figures

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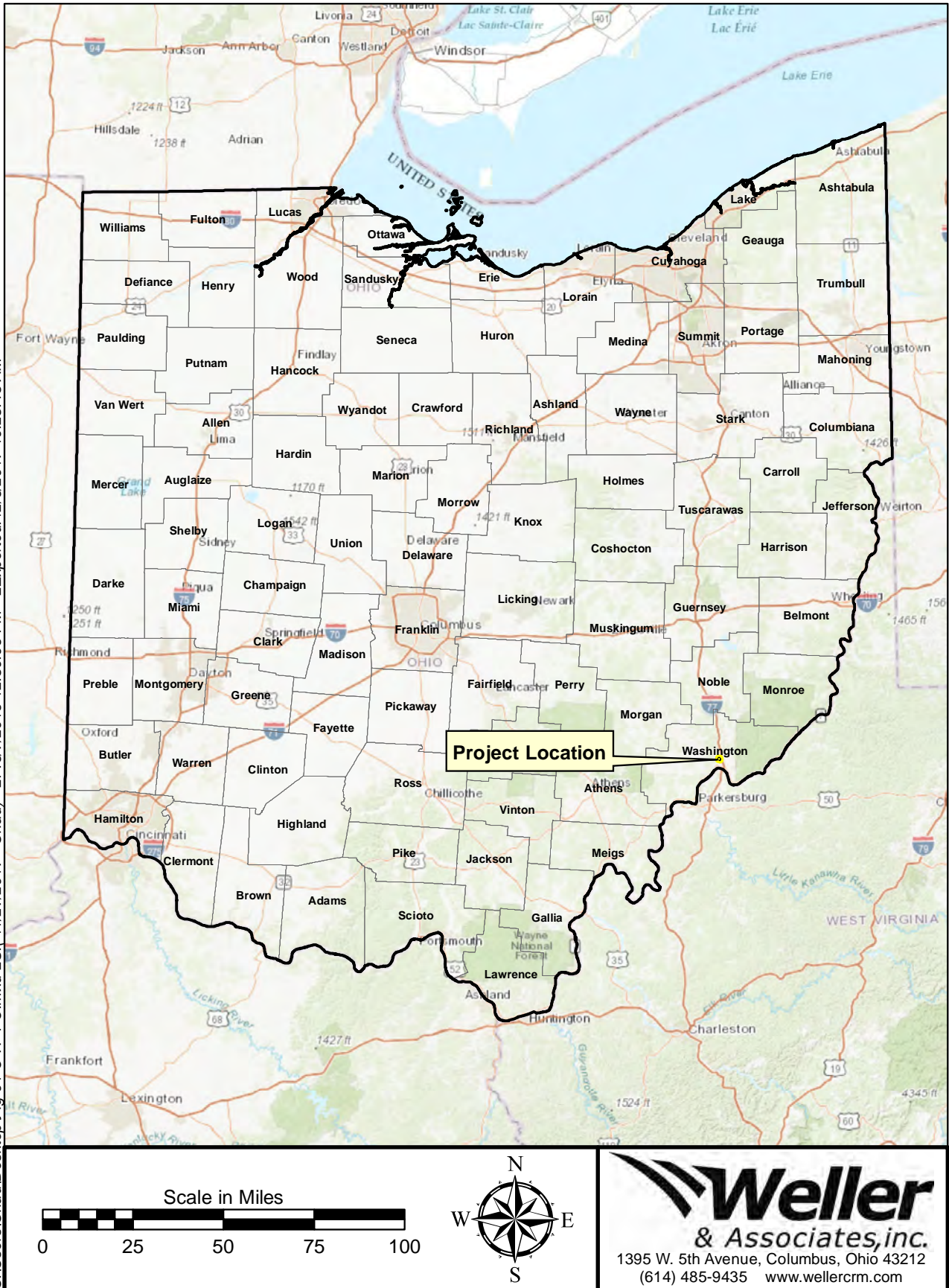


Figure 1. Political map of Ohio showing the approximate location of the project.

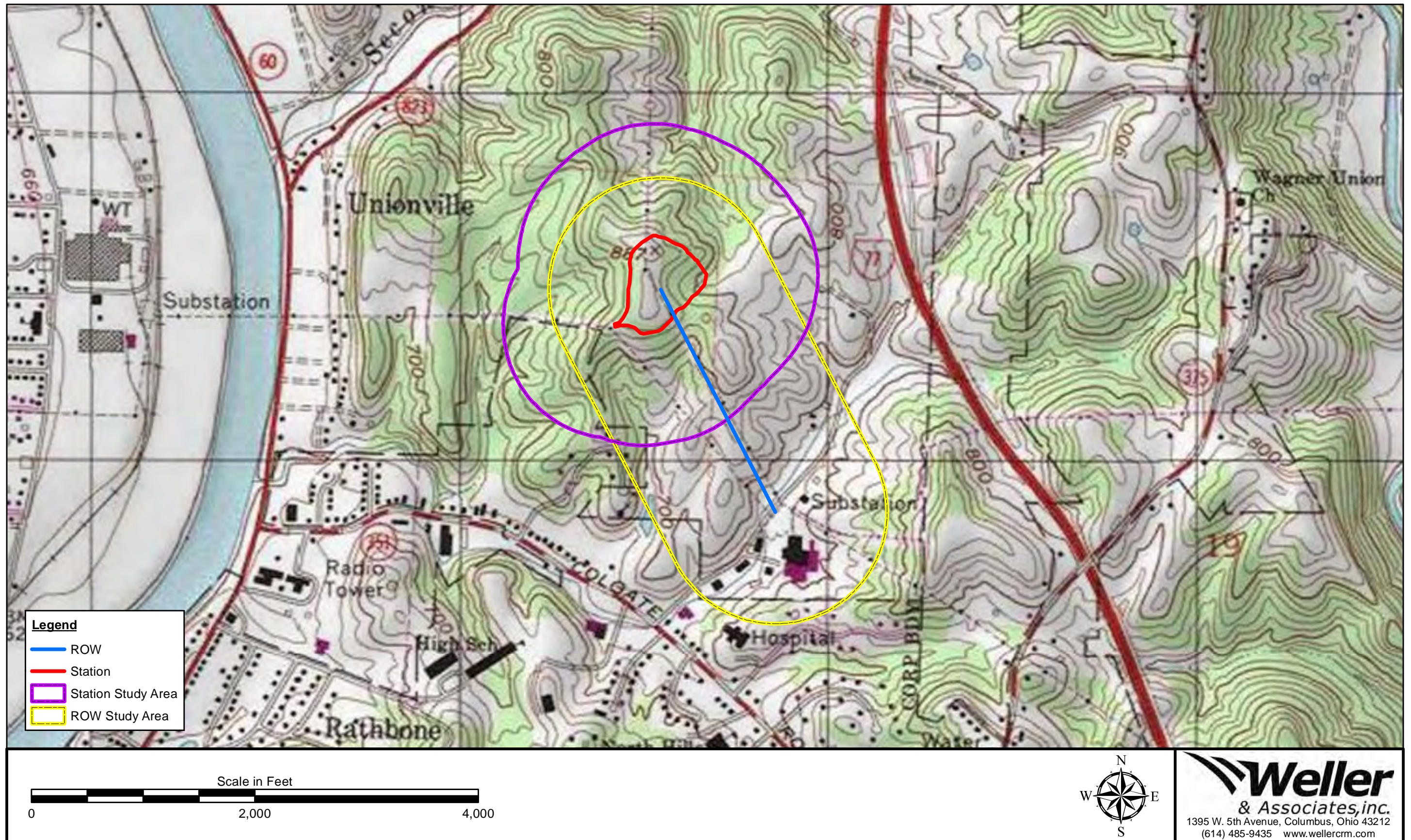


Figure 2. Portion of the USGS 1975 Marietta, Ohio 7.5 Minute Series (Topographic) map indicating the location of the project and study areas.

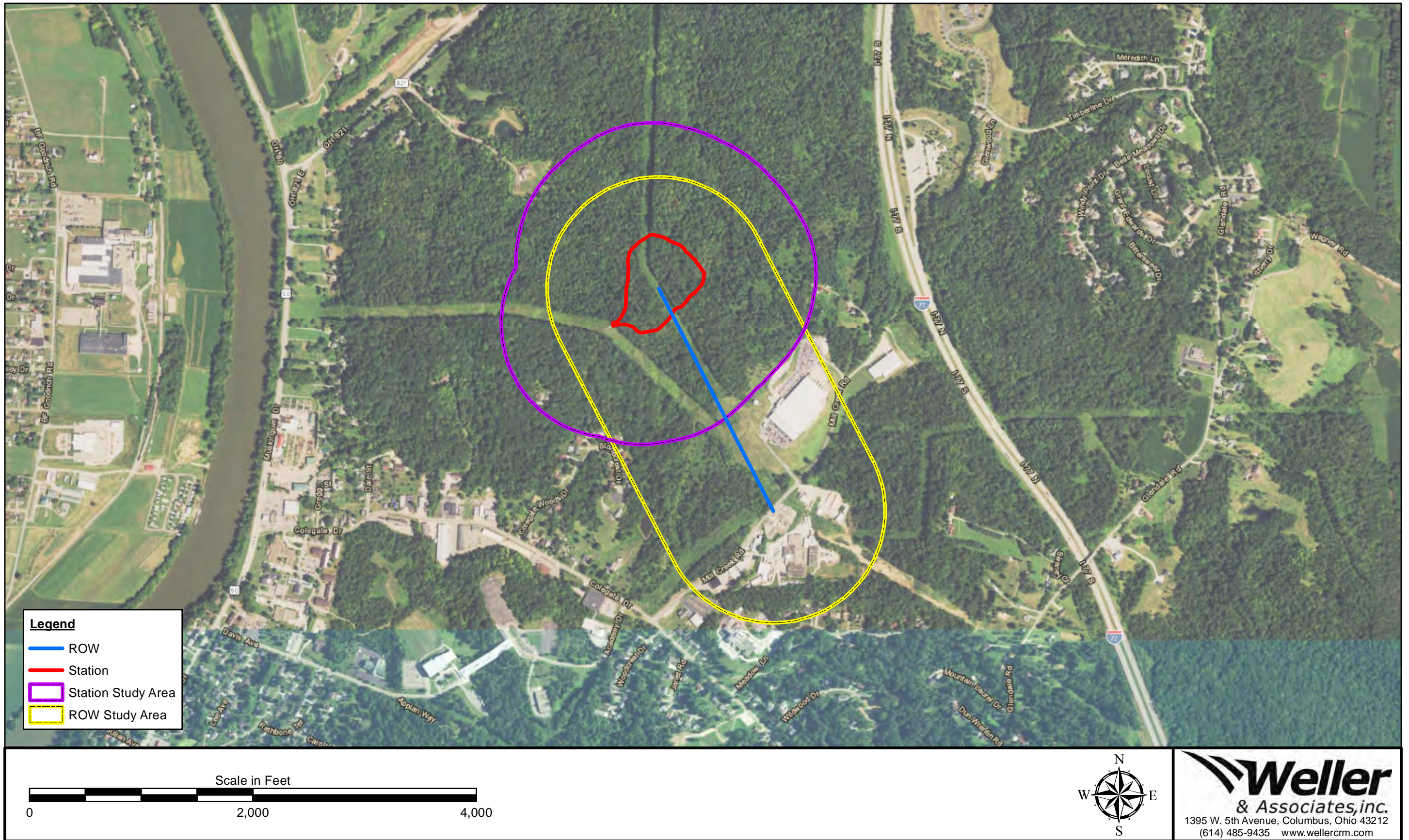


Figure 3. Aerial map indicating the location of the project and study areas.

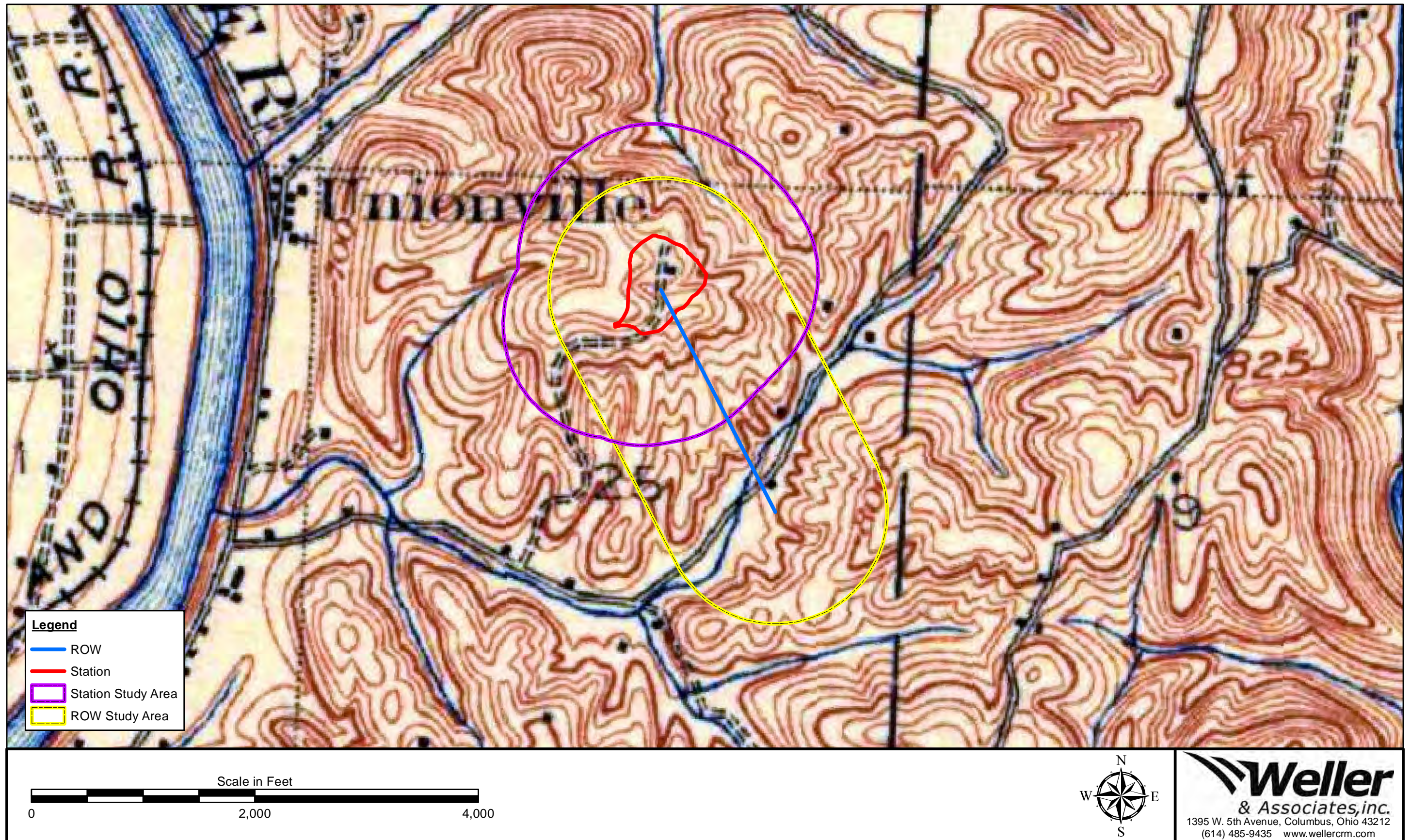


Figure 4. Portion of the USGS 1904 Marietta, Ohio 15 Minute Series (Topographic) map indicating the approximate location of the project and study areas.

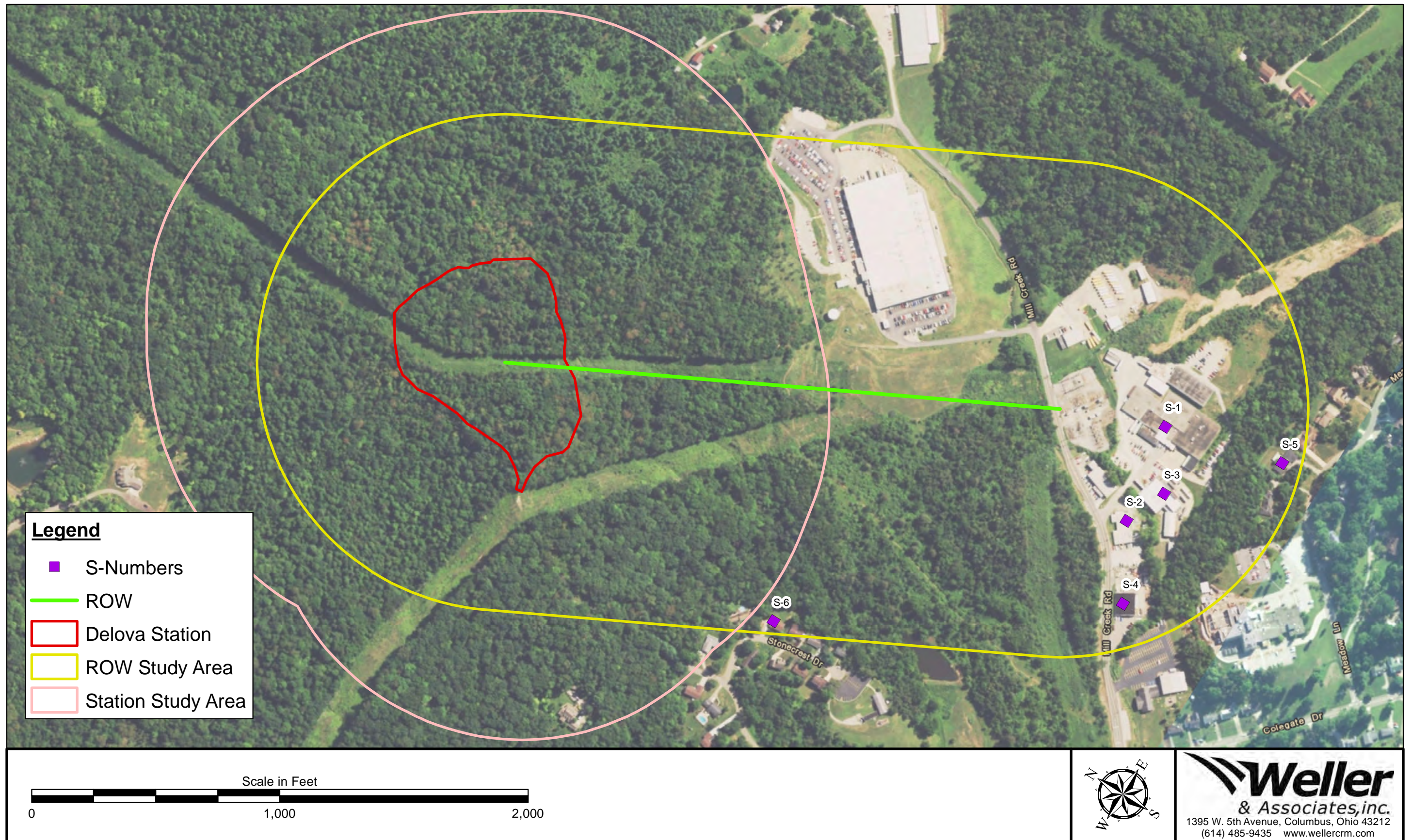


Figure 5. Fieldwork Results Showing the Project and Study Areas, and Resource Locations.



Figure 6. S-1 Mill Creek Drive facing east, Muskingum Township, Washington County.



Figure 7. S-2 Mill Creek Drive facing northeast, Muskingum Township, Washington County.



Figure 8. S-3 Mill Creek Drive facing southeast, Muskingum Township, Washington County.



Figure 9. S-4 Mill Creek Drive facing south, Muskingum Township, Washington County.



Figure 10. S-5 Meadow Lane facing north, Marietta, Washington County.



Figure 11. S-6 Stonecrest Drive facing northeast, Marietta, Washington County.



Figure 12. View from the project area Mill Creek Drive facing south, Muskingum Township, Washington County.



Figure 13. View facing the project area from S-2 Mill Creek Drive facing north, Muskingum Township, Washington County.



Figure 14. View facing the project area from S-6 Stonecrest Drive facing northwest, Marietta, Washington County.

LETTER OF NOTIFICATION FOR DEVOLA STATION PROJECT

Appendix D Ecological Resources Inventory Report

Appendix D Ecological Resources Inventory Report

Ecological Resources Inventory Report

American Electric Power
Devola 138kV Substation Project
Washington County, Ohio

Prepared for



An **AEP** Company

BOUNDLESS ENERGY™

January 2018



400 E Business Way, Suite 400
Cincinnati, OH 45241

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Acronyms and Abbreviations

AEP	American Electric Power
CH2M	CH2M HILL Engineers, Inc
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
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	Devola 138 kV Substation 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 10, 2017, May 18, 2017, and August 14, 2017 in Washington County, Ohio by CH2M HILL Engineers, Inc. (CH2M) for the American Electric Power (AEP) Devola 138 kilovolt (kV) Substation Project (Project).

AEP is proposing to construct a new 138 kV electric substation that will connect 138kV transmission lines from the future Macksburg Substation via the Highland Ridge Substation. This report covers the 16.6 acres that encompasses the proposed Devola Substation site.

- 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 2-2 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 waterbody identified within the study area.
- Appendix A contains Ohio Environmental Protection Agency Primary Headwater Habitat Evaluation Index (HHEI) forms.
- Representative photo documentation is provided in Appendix B.
- Appendix C 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 area (ESA) and methodology used during the wetland and waterbody delineation field surveys.

2.1 Environmental Study Area

The proposed substation site is located approximately 0.4 miles northwest of Mill Creek Road near the community of Devola, Ohio. The ESA is comprised of an approximate 16.6-acre area for the Devola substation footprint plus one proposed permanent access road approximately 2,400 feet in length.

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, and siltstones, sandstones, limes, and coals characterizes 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 substation site is located on a ridge top. The existing transmission line and proposed permanent access road ascend to the substation site from Mill Creek Road.

Land use and vegetation communities observed within the ESA includes commercial lawns, existing utility ROW, and upland forest, in addition to the identified waterbody.

2.1.1 Annual Precipitation

Monthly rainfall data for Devola, Ohio were unavailable from the National Oceanic and Atmospheric Administration (NOAA); therefore, rainfall data for Columbus, Ohio was reviewed. Rainfall recorded in Columbus, Ohio, was above normal for 10 of the last 12 months (Table 2-1; NOAA, 2015-2017). The total rainfall for 2015 was seven inches greater than the average.

Table 2-1. Precipitation in Columbus, Ohio
Devola 138kV Substation Project

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2015 Columbus Monthly Sum ^{1,3}	2.87	1.70	3.92	4.09	3.56	6.72	5.41	3.59	3.21	2.68	2.37	4.88
2016 Columbus Monthly Sum ^{1,3}	2.73	3.29	4.27	2.31	2.74	5.22	2.49	5.82	4.68	1.73	1.02	3.09
2017 Columbus Monthly Sum ^{1,3}	2.83	2.63	5.39	2.59	5.24	4.66	8.55	-	-	-	-	-
Historic Columbus Normal Precip. ^{2,3}	1.12	2.25	3.02	3.40	4.17	4.01	4.79	3.32	2.84	2.61	3.20	2.97

¹NOAA Monthly Weather Summary 2015, 2016, 2017 (Columbus, OH)

²Historic precipitation is based on measurements from 1981 to 2010.

³Displayed in inches

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 single stream in the ESA is an unnamed tributary to the Muskingum River.

3 Wetland and Waterbody Delineation

3.1 Desktop Review

Prior to conducting the field investigations, CH2M 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), 8 soil map units are crossed by the ESA. None of the soil map units are listed as hydric or predominantly hydric; 1 unit is listed as predominantly non-hydric and the remaining 7 units are listed as not hydric (Figure 2; Table 2-2). NRCS data indicate that predominantly non-hydric soils comprise approximately 0.15 acres (1 percent) of the ESA. Approximately 16.5 acres (99 percent) of land cover in the environmental study area is comprised of not hydric soils.

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

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 indicate that one NWI mapped feature is located within the ESA, a riverine, unknown perennial waterbody with an unconsolidated bottom that is permanently flooded (R5UBH). This mapped feature was field verified as stream SDS106. (Figure 3) (USFWS, 2015)

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 miles 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 stream identified within the ESA has a drainage areas smaller than one square mile. In accordance with the Ohio Water Quality Standards, the stream was evaluated using the OEPA Headwater Habitat Evaluation Index (HHEI; OEPA, 2012). The HHEI classifies streams based on habitat characteristics. Utilizing the HHEI scores and CH2M’s 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

One stream was delineated within the ESA. The feature identified is displayed on Figure 4.

4.1 Wetland and Waterbody Summary

Summary information for the waterbody characteristic within the ESA is provided in Tables 3-1, below. The length (feet) of the stream within the ESA is included; however, this feature will not be impacted by Project construction due to an existing permanent concrete bridge and culverts.

4.1.1 Wetlands

No wetlands were identified or delineated within the ESA.

4.1.2 Waterbodies

A total of one stream, delineated as SDS106, was identified within the ESA. The stream is an unnamed tributary to the Muskingum River. The flow regime determination, classified as perennial, was interpreted based on the HHEI scores, field observations, and the USGS topographic maps (Figure 1). The stream appears to have significant nexus with a TNW and is 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, in this case, the Muskingum River. The stream is covered by an existing concrete bridge structure and culverted on either side of the proposed permanent access road.

The HHEI form is provided in Appendix A and representative photographs of the stream are provided in Appendix B.

Table 3-1. Project Study Area Stream Summary
Devola 138kV Substation Project, 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
SDS106	proposed permanent access road	UNT Muskingum River	Perennial	050400041204	0.49	20	RPW	N/A	61	Class II	Ineligible	Muskingum River

Abbreviations:

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

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)

4.2 Land Use and Habitat Summary

CH2M field biologists conducted a general habitat survey in conjunction with the wetland and waterbody field surveys during the August 2017 site visit. The ESA comprises early successional forest, existing transmission right-of-way (ROW), mowed/maintained commercial lawns, 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 a portion of the proposed permanent access road and portions of the Devola substation footprint. Dominant species include white oak (*Quercus alba*, FACU), American beech (*Fagus grandifolia*, FACU), sugar maple (*Acer saccharum*, FACU), Ohio buckeye (*Aesculus 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 including portions of the proposed permanent access road, the existing transmission ROW, and the Devola substation footprint, includes dominant 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).

The maintained commercial lawns make up a small portion of the proposed permanent access road and include dominant species such as Kentucky blue grass (*Poa pratensis*, FACU) and crabgrass species (*Digitaria sp.*).

5 Protected Species

CH2M 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, CH2M submitted an Ohio Natural Heritage Database Request to the ODNR Division of Wildlife (DOW), 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 Project area. 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 C.

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 study area in Washington County, Ohio.

Table 5-1. Federally Listed Species Recorded in Washington County
Federal Listed Threatened and Endangered Species Impact Assessment, Devola 138kV Substation Project

Common Name (Species Name)	Federal Status	General Habitat Notes	Recorded Location within Project Vicinity	Potential Habitat in ESA
Mammals				
Indiana bat <i>Myotis sodalis</i>	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 <i>(Myotis septentrionalis)</i>	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 C.

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA
State Listed Threatened and Endangered Species Impact Assessment, Devola 138kV Substation Project

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Mammals				
Indiana bat (<i>Myotis sodalis</i>)	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 (<i>Ursus americanus</i>)	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
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

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA
State Listed Threatened and Endangered Species Impact Assessment, Devola 138kV Substation Project

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
River darter (<i>Percina shumardi</i>)	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 (<i>Percina copelandi</i>)	Threatened	Found in large, coarse 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 (<i>Etheostoma tippecanoe</i>)	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 (<i>Plethobasus cyphus</i>)	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 (<i>Cyprogenia stegaria</i>)	Endangered	Found in medium to large rivers and buries itself in sand or gravel in deep water. Found in the Ohio River and tributaries	Yes, within one mile radius of the ESA.	No
Pick mucket (<i>Lampsilis orbiculate</i>)	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 (<i>Epiloblasma triquetra</i>)	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
Washboard (<i>Megaloniais nervosa</i>)	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

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA
State Listed Threatened and Endangered Species Impact Assessment, Devola 138kV Substation Project

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
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
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

Table 5-2. State-Listed Species Recorded Within One Mile of the ESA
State Listed Threatened and Endangered Species Impact Assessment, Devola 138kV Substation Project

Common Name (Species Name)	State Status	General Habitat Notes	Recorded Location within One Mile Radius of ESA	Potential Habitat in ESA
Threehorn wartyback (<i>Obliquaria reflexa</i>)	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 (<i>Truncilla donaciformis</i>)	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 (<i>Crotalus horridus horridus</i>)	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 (<i>Cryptobranchus alleganiensis alleganiensis</i>)	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 (<i>Scaphiopus holbrookii</i>)	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). One stream (SDS106) in the ESA is a small perennial stream. 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 138 kV electric Substation in Washington County, Ohio. Field surveys were conducted by CH2M on January 10, 2017, May 18, 2017, and August 14, 2017. The project could result in temporarily impacting one perennial stream an unnamed tributary to the Muskingum River, identified as SDS106. The proposed access road to the Devola Station crosses this stream using the existing paved driveway installed over a culvert; the culvert may need to be replaced as part of this Project. SDS106 is expected to be within the USACE's jurisdiction due to the connection to the Muskingum River. Further coordination with the USACE prior to completing any permit or construction activities is recommended. The project falls in an area ineligible for Nationwide Permit authorization without an Individual 401 Water Quality certification.

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Figures

Document Path: \\brooks\GIS_SHA\REVENR\G100_Proj\VAEP\Marietta_BellRidge_Devolia\Maps\Report\Devolia_Substation\Fig1_Devolia_Substation_Overview.mxd



- Legend**
-  Devola Substation Footprint
 -  Devola Substation Site Limits of Disturbance
 -  Proposed Permanent Access Road


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

January 03, 2018

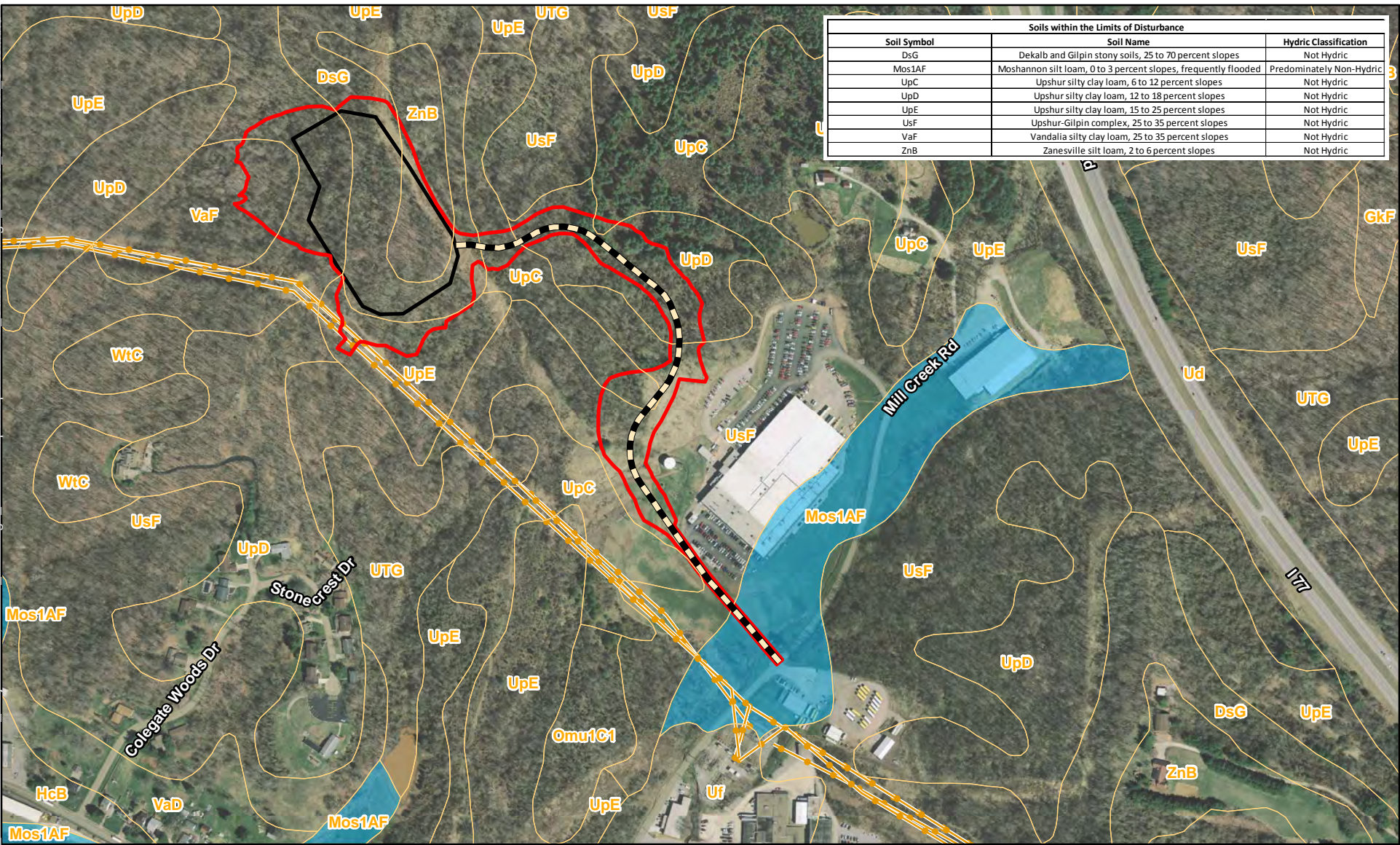


FIGURE 1
USGS TOPOGRAPHIC MAP

 Devola Substation
 Washington County, OH

0 500 1,000
 Feet

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Soils within the Limits of Disturbance		
Soil Symbol	Soil Name	Hydric Classification
DsG	Dekalb and Gilpin stony soils, 25 to 70 percent slopes	Not Hydric
Mos1AF	Moshannon silt loam, 0 to 3 percent slopes, frequently flooded	Predominately Non-Hydric
UpC	Upshur silty clay loam, 6 to 12 percent slopes	Not Hydric
UpD	Upshur silty clay loam, 12 to 18 percent slopes	Not Hydric
UpE	Upshur silty clay loam, 15 to 25 percent slopes	Not Hydric
UsF	Upshur-Gilpin complex, 25 to 35 percent slopes	Not Hydric
VaF	Vandalia silty clay loam, 25 to 35 percent slopes	Not Hydric
ZnB	Zanesville silt loam, 2 to 6 percent slopes	Not Hydric

Legend

- Devola Substation Footprint
- Devola Substation Site Limits of Disturbance
- Proposed Permanent Access Road
- Existing Transmission Line
- 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

January 03, 2018

LOCATOR MAP

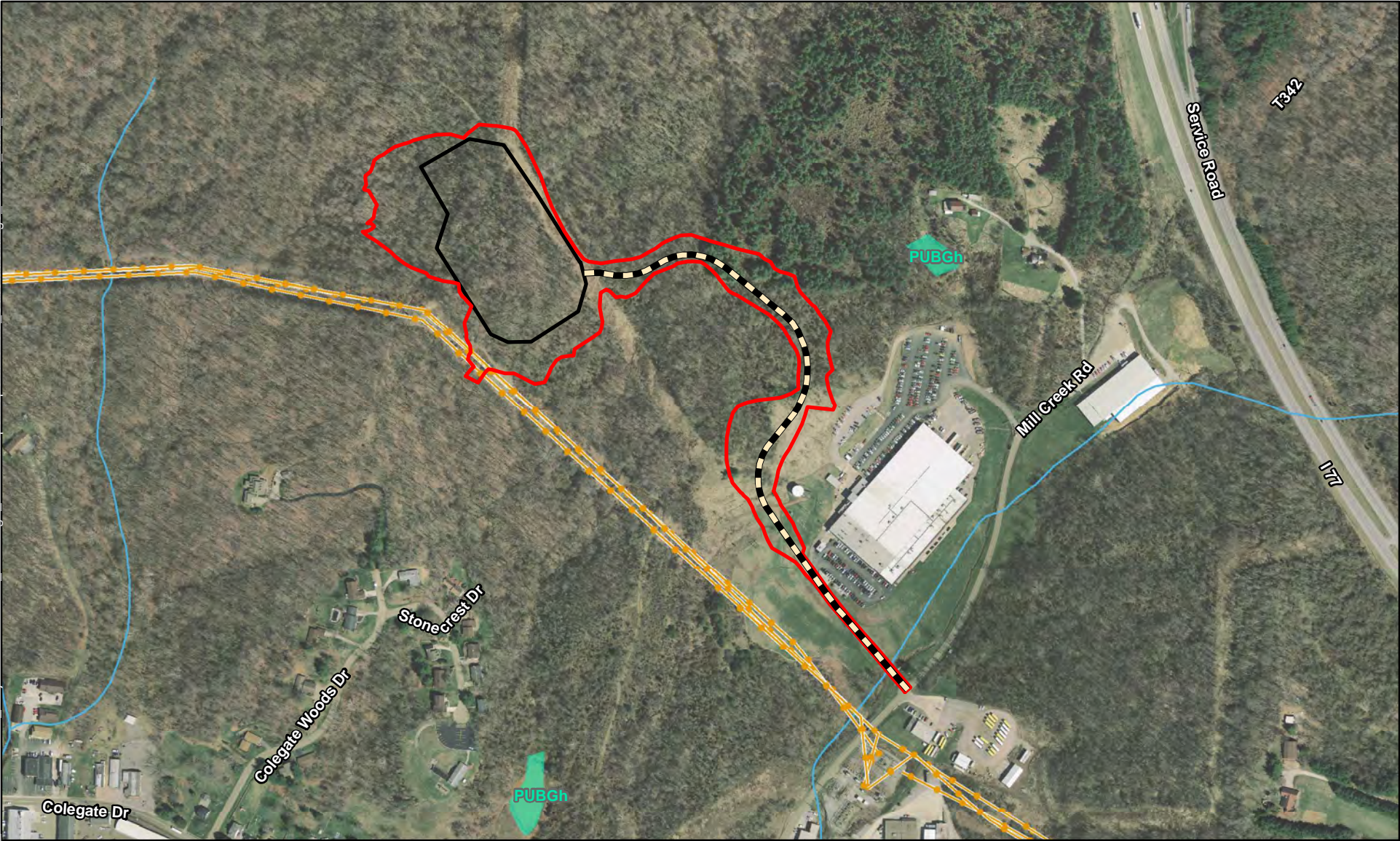
Washington County

**FIGURE 2
SOIL MAP**

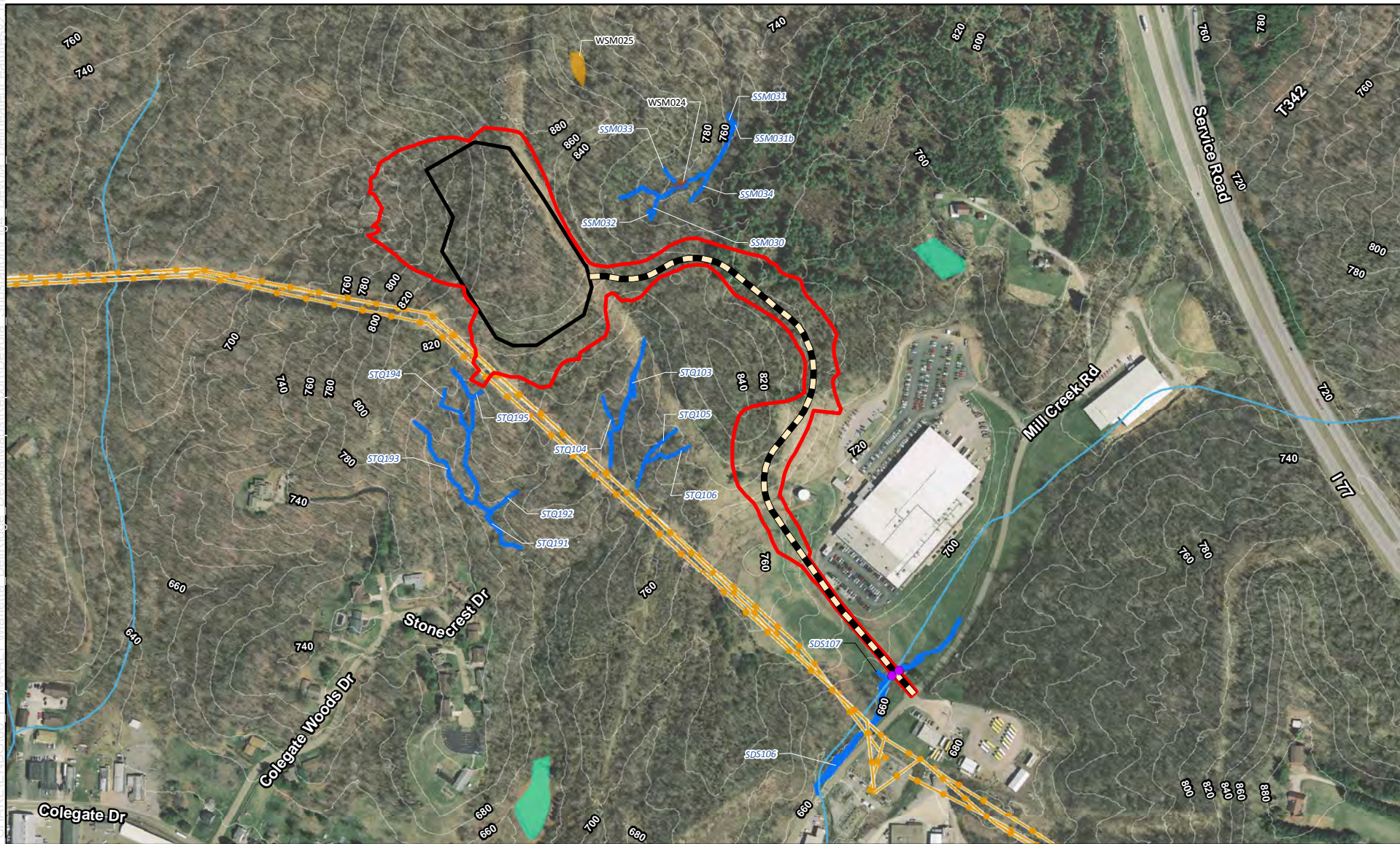
Devola Substation
Washington County, OH

0 500 1,000
Feet

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Legend Devola Substation Footprint Devola Substation Site Limits of Disturbance Proposed Permanent Access Road Existing Transmission Line Stream (NHD) Wetland (NWI)		BASE MAP SOURCE: Ohio Statewide Imagery Program, 2014 Coordinate System: State Plane Ohio South FIPS 3402 Feet Datum: NAD 1983 Scale 1:6,000	LOCATOR MAP Washington County	FIGURE 3 NHD STREAMS/WATERBODIES AND NWI WETLANDS Devola Substation Washington County, OH
		January 02, 2018		



<ul style="list-style-type: none"> Devola Substation Footprint Devola Substation Site Limits of Disturbance Proposed Permanent Access Road Existing Transmission Line 	<ul style="list-style-type: none"> Culvert Stream (NHD) Wetland (NWI) Delineated Stream 	<p>Delineated Wetland</p> <ul style="list-style-type: none"> Palustrine Emergent (PEM) Palustrine Forested (PFO)
---	---	---

BASE MAP SOURCE:
 Ohio Statewide Imagery
 Program, 2014

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

January 04, 2018



FIGURE 4

**WETLAND, WATERBODIES
DELINEATION MAP**

Devola Substation
 Washington County, OH

0 500 1,000
 Feet

Appendix A
OEPA Primary Headwater Habitat Evaluation Forms



Primary Headwater Habitat Evaluation Form

61

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

SITE NAME/LOCATION **AEP Bell Ridge to Devola / Mill Creek Rd Area / UNT Muskingum River**

SITE NUMBER **SDS106** RIVER BASIN **05040004** DRAINAGE AREA (mi²) **0.49**

LENGTH OF STREAM REACH (ft) **570** LAT. **39.44441** LONG. **-81.44229** RIVER CODE RIVER MILE

DATE **05/18/17** SCORER **DC Stanley** COMMENTS **HUC 12 050400041204 Devol Run-Muskingum River**

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

STREAM CHANNEL MODIFICATIONS: NONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY
concrete slabs

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
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	30%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15%	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	10%	<input type="checkbox"/> <input checked="" type="checkbox"/> ARTIFICIAL [3 pts]	25%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **15.00%** (A)

Substrate Percentage Check **100%** (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **6**

TOTAL NUMBER OF SUBSTRATE TYPES: **5**

HHEI Metric Points

Substrate Max = 40

11

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):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input checked="" type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS MAXIMUM POOL DEPTH (centimeters): **25.4**

Pool Depth Max = 30

30

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

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

COMMENTS AVERAGE BANKFULL WIDTH (meters): **1.88**

Bankfull Width Max=30

20

This information must also be completed

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

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

COMMENTS

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

<input checked="" type="checkbox"/> Stream Flowing	<input type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

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

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >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: **>5,000 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: **Fearing Township**

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: **05/12/17** Quantity: **0.04**
Photograph Information:
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

FLOW →



Appendix B
Photo Documentation

Representative Site Photographs



PHOTO NO.	SITE NAME	DIRECTION	DATE OF SURVEY	WATERBODY NAME	FLOW REGIME
PP467	SDS106	NE, Upstream	18-May-17	UNT to Muskingum River	Perennial

Notes: NHD Perennial stream SDS106 looking upstream, located on the eastern side of the proposed access road study area.



PHOTO NO.	SITE NAME	DIRECTION	DATE OF SURVEY	WATERBODY NAME	FLOW REGIME
PP468	SDS106	SW, Downstream	18-May-17	UNT to Muskingum River	Perennial

Notes: NHD Perennial stream SDS106 looking downstream, located on the western side of the proposed access road study area.



PHOTO NO.	SITE NAME	DIRECTION	DATE OF SURVEY	WATERBODY NAME	FLOW REGIME
PP469	SDS106	Substrate	18-May-17	UNT to Muskingum River	Perennial

Notes: NHD Perennial stream SDS106 looking at the primary substrate, silt and artificial stone, located on the eastern side of the proposed access road study area.



PHOTO NO.	SITE NAME	DIRECTION	DATE OF SURVEY
PP627	Access road	N	14-August-2017

Notes: The location of the proposed permanent access road looking north leading to the Devola substation.



PHOTO NO.	SITE NAME	DIRECTION	DATE OF SURVEY
PP626	Access road	SE	14-August-2017

Notes: The location of the proposed permanent access road looking southeast towards Thermo Fisher Industries and Mill Creek Road.

Appendix C
Threatened and Endangered Species Consultation



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

Office of Real Estate
Paul R. Baldrige, 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 (*Megaloniais nervosa*), E
Threehorn wartyback (*Obliquaria reflexa*), T
Sheepnose (*Plethobasus cyphus*), 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 sheepsfoot (*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 (*Megaloniais 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

From: susan_zimmermann@fws.gov
To: [Qualio, Trisha/PGH](mailto:Qualio,Trisha@PGH)
Cc: [Frank, Mike/CIN](mailto: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,

A handwritten signature in blue ink, appearing to read "Dan Everson".

Dan Everson

Field Supervisor

cc: Nathan Reardon, ODNR-DOW

Kate Parsons, ODNR-DOW