AMERICAN TRANSMISSION SYSTEMS, INCORPORATED
A FIRSTENERGY COMPANY

LETTER OF NOTIFICATION

FOSTORIA WEST END (AEP)-LEMOYNE-WEST FREMONT 138kV TRANSMISSION LINE AND WOODVILLE NO. 2 SUBSTATION UPGRADE PROJECT

OPSB CASE NO.: 19-1337-EL-BLN

September 9, 2019

American Transmission Systems, Incorporated
76 South Main Street
Akron, Ohio 44308

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The following information is being provided in accordance with the requirements in the Ohio Administrative Code (OAC) Chapter 4906-6 for the review of Accelerated Certificate Applications. Based upon the requirements found in Appendix A to OAC Rule 4906-1-01, this Project qualifies for Submittal to the Ohio Power Siting Board ("OPSB") as a Letter of Notification application.

4906-6-05: ACCELERATED APPLICATION REQUIREMENTS

4906-6-05: Name and Reference Number

Name of Project: Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line and Substation Upgrade Project ("Project")

4906-6-05 (B)(1): Brief Description of Project

American Transmission Systems, Incorporated ("ATSI"), a FirstEnergy company, proposes the expansion of the existing Woodville No. 2 138kV Substation to facilitate the installation of new equipment and eliminating a four-terminal transmission line configuration. Both of these components are collectively referred to as the "Project".

The substation portion of the proposed Project consists of converting the Woodville No. 2 138kV Substation into a five (5) breaker (future 6-breaker) ring bus. The expansion is necessary to facilitate the installation of five (5) new breakers, eleven (11) switches and associated substation equipment. To accomplish this, the substation fence will be expanded approximately 50,760 square feet, which is an approximately 223% increase in the size of the substation footprint. At the completion of the Project, the new total area of the substation will be approximately 73,542 square feet.

The transmission line portion of the proposed Project consists of eliminating a four-terminal line configuration on the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line. The existing single circuit Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line will be converted to a double circuit 138 kV transmission line. This conversion from single circuit transmission line to a double circuit transmission line involves rebuilding a 3.1 mile section of line from the Woodville No. 2 Substation to structure #28 on the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line and extending the existing ROW from 40 feet to 60 feet. The West Fremont-Woodville No.2 138kV transmission line exit east of the substation will also require two (2) new wood structures to accommodate the substation reconfiguration. The rebuilt section of transmission line will consist of a combination of steel poles on concrete foundations, direct embed light duty steel poles, and wood poles.

This Project will also involve removing approximately 1.67 miles of conductor from the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line. The conductor from the three-terminal point on structure 1 to structure 9 along the Fostoria West End (AEP)-Lemoyne-West Fremont will no longer be utilized under the new configuration. The addition of a new 3.1 mile double circuit line will allow for separate circuits between Lemoyne-Woodville No.2, Fostoria West End (AEP)-Woodville No.2, and West Fremont-Woodville No.2.

The general location of the proposed Project is shown in Exhibit 1 and Exhibit 2. Exhibit 1 is a partial copy of USGS Topographic Maps. Exhibit 2 provides a partial copy of ESRI aerial imagery. The substation is located in Sandusky County, near the vicinity of the intersection of Pemberville Road and OH-582 in Woodville, Ohio. The physical address of the substation is 6801 State Route 582, Woodville, Ohio. The transmission line portion of the Project extends west from the substation through Woodville Township in Sandusky County, Ohio and Troy Township in Wood County, Ohio. The general layout is shown in Exhibits 3 and 3A.

4906-6-05 (B)(1): Letter of Notification Requirements

The Project falls within Item (4)(b) and Item (2)(b) of the Application Requirement Matrix for Electric Power Transmission Lines, in Appendix A of OAC Rule 4906-1-01. These sections state that an applicant may use the Letter of Notification application process if the Project is for:

(4) Constructing additions to existing electric power transmission stations or converting distribution stations to transmission stations where:

(b) There is a greater than twenty percent expansion of the fenced area.

(2) Adding new circuits on existing structures designed for multiple circuit use, replacing conductors on existing structures with larger or bundled conductors, adding structures to an existing transmission line, or replacing structures with a different type of structure, for a distance of:

(b) More than two miles.

This Project meets requirement (4)(b) because the existing Woodville No. 2 138kV Substation is approximately 22,782 square feet and will be expanded approximately 50,760 square feet to a total post-Project size of 73,542 square feet. This increase represents an approximate 223% increase in the footprint of the substation. This Project also meets requirement (2)(b) because it involves adding new circuits on existing structures and replacing structures with a different type of structures for approximately 3.1-miles.

4906-6-05 (B)(2): Need for the Project

The Project is needed to (i) improve system protection by eliminating an existing four-terminal line configuration; (ii) improve operational flexibility during maintenance and

restoration efforts; and (iii) provide additional voltage support for the Woodville 34.5kV system.

Currently, the existing Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line is configured as a four-terminal line between Lemoyne, Fostoria West End (AEP), Woodville No. 2 and West Fremont substations with approximately 47 miles of transmission line exposure. In this configuration, an outage at any point along the 47 mile exposure results in the loss of the circuit at all for terminals, the Lemoyne, Fostoria West End (AEP), Woodville No. 2 and West Fremont substations. The Project proposes to eliminate the four-terminal line configuration by rebuilding the existing approximately 3.1-mile Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line extension to Woodville No. 2 138kV Substation as a double circuit transmission line. In order to accommodate the double circuit rebuild, the existing Woodville No. 2 Substation is proposed to be expanded to a five (5) breaker (future 6) breaker ring bus.

The Project will result in the following lines being created: Lemoyne-Woodville No. 2 138kV Transmission Line, Fostoria West End (AEP)- Woodville No. 2 138kV Transmission Line, and the Woodville No. 2-West Fremont 138kV Transmission Line. These transmission lines will replace the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line with separate transmission lines, thus reducing overall exposure and providing significant improvements to the ability of the transmission system to respond to outage events and other contingencies.

From 2013 to present, there were five momentary and eight sustained outages with an average outage duration of 26.2 hours that were the direct result of the four-terminal line configuration of the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line. The Project will mitigate the potential for outages of this nature and provide increased reliability to approximately 2,692 customers in the area.

In addition to correcting the four-terminal configuration of the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line, the Project also upgrades the existing Woodville No. 2 Substation to current best practice design. The Woodville No. 2 Substation was originally designed and built as a straight bus with two circuit switches. The straight bus configuration is no longer the best practice configuration for the substation under FirstEnergy's Energizing the Future (EtF) standards. A straight bus design has several points of failure, all of which can lead to the loss of power to all terminals and transformers connected to the bus. The proposed five (5) breaker (future 6) ring bus configuration and transmission line work will result in the elimination of multiple points of failure and the four-terminal line which will provide enhanced reliability and operational flexibility.

There are two principle points of failure associated with the current substation configuration, which can result in significant service disruptions for customers served from the Woodville No. 2 Substation:

1. A fault on the single bus would result in an outage of the entire bus, the single 138/34.5kV transformer and the single 138/12.47kV transformer, which will cause an outage on the Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV four-terminal line.
2. A failure of either circuit switchers will also result in an outage on the single bus, which will result in the loss of the 138/69 kV and 138/12.47kV transformers, and consequently an outage on the Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV four-terminal line.

The loss of the Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV four-terminal line results in service disruption for 2,692 customers. Due to the configuration of the substation and transmission lines, these disruptions can be long duration events.

With this Project, a single breaker failure or a fault on one section of the ring bus would no longer result in an entire bus outage. This improves on the reliability for load served

from the 138/69 kV and 138/12.47kV transformer at Woodville No. 2 138 kV Substation during contingency conditions. Additionally, the Project improves operational and maintenance flexibility by allowing the Woodville No. 2 138 kV bus to remain energized for breaker maintenance or replacement.

Elimination of the four-terminal line improves reliability by simplifying the Transmission Protection scheme. This improves relay coordination and reduces likelihood of mis-operations. Furthermore, the four-terminal line elimination will reduce the mileage of transmission line exposure.

The need for the Project and the proposed solution was presented by FirstEnergy at the September 28, 2018 Subregional Regional Transmission Expansion Plan (SRRTEP) Committee Western meeting and has been assigned PJM supplemental RTEP number s1702. The PJM SSRTEP-Western presentation slide is included as Exhibit 4 and includes additional details of the Project drivers. This Project is included in the FirstEnergy Corp. 2019 Long Term Forecast Report ("LTFR"), OPSB Case No. 19-1337-EL-BLN.

4906-6-05 (B)(3): Location of the Project Relative to Existing or Proposed Lines

The location of the Project relative to existing or proposed lines is shown in the ATSI Transmission Network Map, included as part of the confidential portion of the FirstEnergy Corp 2019 LTFR. This map was submitted to the PUCO in Case No. 19-0806-EL-FOR under OAC Rule 4901:5-5:04 (C). This map is incorporated by reference only. This map shows ATSI's 345 kV and 138 kV transmission lines and transmission substations including the Woodville No. 2 Substation. The Project area is located approximately 5 ½ inches (11" x 17" printed version) from the left edge of the map and 2 ¼ inches (11" x 17" printed version) from the top of the map. The general location of the Project is shown in Exhibits 1 and 2. The Project layout is shown in Exhibit 3.

4906-6-05 (B)(4): Alternatives Considered

Alternatives to the proposed Project included the following:

- No Action – Continued operation of the substation as a single bus results reduced reliability for approximately 2,692 customers served from the Woodville No. 2 Substation, reduced operational flexibility to perform maintenance activities, and potential load loss under contingency conditions. Furthermore, leaving the four-terminal line configuration in place leaves approximately 28 miles of transmission line exposed.
- Dedicated Line Exit – Create a dedicated line exit for Fostoria West End (AEP) at the Lemoyne substation and replace the circuit switchers at Woodville No. 2 with breakers. This option was not selected due to space constraints at the Lemoyne Substation. Also, this alternative does not provide additional reliability for the Woodville No. 2 138 kV Substation.
- Alternative Placement of the Ring Bus Substation – An alternative to the expansion and reconfiguration of the Woodville No. 2 Substation that was considered was the construction of a new ring bus substation approximately 3.2 miles west of the existing Woodville No. 2 Substation, adjacent to the existing Fostoria Central-Lallendorf 345 kV Transmission Line corridor. While the alternative would reduce the exposed line mileage, it does not completely eliminate the four-terminal line configuration, does not update the existing straight bus at Woodville No. 2, and does not benefit the 34.5 kV network associated with Woodville No. 2. With this alternative placement of the Ring Bus substation, a three-terminal line would remain on either side of the Lemoyne-Woodville No. 2 138 kV line section or the West Fremont-Woodville No. 2 138 kV line section. This design would also lead to a greater Project footprint than the proposed solution.

4906-6-05 (B)(5): Public Information Program

ATSI will issue a public notice in a newspaper of general circulation in the Project area within 7 days of filing this Letter of Notification application. The notice will comply with OAC Rules 4906-6-08(A) (1) through (6). In addition to the public notice, ATSI will mail

letters to affected landowners and tenants within and contiguous to the Project Area . ATSI has also established a project website: https://www.firstenergycorp.com/about/transmission_projects/ohio.html .

Finally, during all phases of this Project, ATSI will maintain the transmission projects hotline at 1-800-589-2873 or via email at: transmissionprojects@firstenergycorp.com where the public may ask questions or leave comments on the Project for ATSI.

4906-6-05 (B)(6): Construction Schedule

Construction for the Project is anticipated to begin on December 9, 2019. The proposed in-service date for the Project is November 30, 2020.

4906-6-05 (B)(7): Area Map

Exhibits 1 and 2 depict the general location of the Project. Exhibit 1 provides a partial copy of the United States Geologic Survey, Sandusky and Wood County, Ohio Quad Map. Exhibit 2 provides a partial copy of ESRI aerial imagery.

4906-6-05 (B)(8): Property Owner List

The Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV Transmission Line is located on existing right-of-way. Additional right-of-way easement (20ft) will be necessary to support the Project rebuild to double circuit. Priority tree rights will also be pursued by transmission line maintenance. Exhibit 5 contains a list of property owners affected by the project. Toledo Edison, a FirstEnergy Company, owns the land surrounding the Woodville No. 2 Substation, including the land required for the expansion. No additional property easements, options, or land use agreements will be necessary to expand the substation.

4906-6-05 (B) (9): TECHNICAL FEATURES OF THE PROJECT

4906-6-05 (B)(9)(a): Operating Characteristics

The equipment and facilities described below will be located within the expanded fenced area of the Woodville No. 2 Substation.

Voltage:	138 kV Max System Voltage (550 kV BIL)
Bus Conductor:	336.4 KCMIL 26/7 ACSR
	1033.5 KCMIL 61str AAC
	1590 KCMIL 61str AAC
Insulators:	Porcelain
Breakers:	Five (5) 138 kV 3000 A 40 kA Siemens SPS2S Breakers
Switches:	Eleven (11) 138 kV 2000 A Manual V-Type Switches
	Three (3) 138 kV 2000 A Motor Operated Switches
CVT's:	Twelve (12) 138 kV Single Phase Capacitor Voltage Transformers
WT's	Two (2) 138 kV 2000 A Single Phase Wave Trap
Arresters:	Nine (9) 108 kV (84kV MCOV) Arresters
Structures:	Sixteen (16) 138 kV Bus Support Structures
	One (1) 138 kV Dual Bay A-Frame Take-off Structure
Fence:	Approximately 1066 feet (0.20 miles) of new fence

The equipment and facilities described below are associated with the rebuild of the Fostoria West End (AEP)-Lemoyne-West Fremont Transmission Line to double circuit.

Voltage:	138 kV
Conductors:	954 kcmil 45/7 ACSR (Same as existing)
Static Wire:	OPGW
Insulators:	Deadend (Porcelain); Tangent (Polymer)
ROW Width:	60 feet
Land Requirements:	20 feet of additional right of way
Structure Types:	Eighty-Six (86) new structures will be installed with the Project:

Exhibit 6 - Sixty-One (61) Double Circuit Tangent with Post Insulator Wood and Direct Embed Steel

Exhibit 7 – Seven (7) Double Circuit Tangent with Braced Post Direct Embed Steel

Exhibit 8 – Six (6) Double Circuit Dead-End 50°- 90° Steel on Foundation

Exhibit 9 – Four (4) Double Circuit Dead-End 0°-50° Steel on Foundation

Exhibit 10 – Four (4) Single Circuit Dead-End Strain Wood

Exhibit 11 – One (1) Single Circuit Dead-End Steel on Foundation

Exhibit 12 – Three (3) Single Circuit Dead-End Wood

4906-6-05 (B)(9)(b): Calculated Electric and Magnetic Field

The closest occupied residence or institution is approximately 30 feet from the proposed transmission line centerline; therefore, Electric and Magnetic Field ("EMF") calculations are required by this code provision.

4906-6-05 (B)(9)(b)(i): Calculated Electric and Magnetic Fields Strength Levels

Table 1 itemizes the line loading of the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line. The normal line loading represents FirstEnergy's peak system load for the transmission lines. The emergency line loading represents the maximum line loading under contingency operation. The winter rating is based on the continuous maximum conductor rating ("MCR") of the circuits for the single conductors per phase and an ambient temperature of zero degrees centigrade (32 °F), wind speed of 1.3 miles per hour, and a circuit design operating temperature of 100 °C (212 °F).

Table 1: Transmission Line Loading

Line Name	Normal Loading Amps	Emergency Loading Amps	Winter Rating Amps
Lemoyne-Woodville No. 2 138 kV Transmission Line	40	201	1462
Fostoria West End (AEP)-Woodville No. 2 138 kV Transmission Line	110	562	1462

Table 2 provides an approximation of the magnetic and electric fields strengths of the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line calculated in a 60-foot right-of-way. The calculations provide an approximation of the electric and magnetic field levels based on specific assumptions utilizing the EPRI EMF Workstation 2009 program software. This program software assumes the input transmission line configuration is located on flat terrain. Also, a balanced, three-phase circuit loading is assumed for the transmission circuit. The model utilizes the normal, emergency, and winter rating of the transmission lines.

Table 2: EMF Calculations for Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line

Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line– 60ft ROW		Electric Field kV/m	Magnetic Field mG
Normal Loading	Under Lowest Conductors	1.786	9.89
	At Right-of-Way Edges	0.69	6.12 / 7.22
Emergency Loading	Under Lowest Conductors	1.786	30.73
	At Right-of-Way Edges	0.69	11.94 / 22.55
Winter Rating	Under Lowest Conductors	1.786	187.95
	At Right-of-Way Edges	0.69	129.37

4906-6-05 (B)(9)(b)(ii): Alternative Design Consideration for Electric and Magnetic Fields

The strength of EMFs can potentially be reduced by installing the transmission line conductors in a compact configuration and, for multiple circuit transmission lines, by selecting conductor phasing that reduces the field strengths. ATSI designs its facilities according to the requirements of the NESC. The pole heights and configuration were chosen based on NESC specifications, engineering parameters, and cost. ATSI's typical practice, as proposed in this the new construction portions of this Project, is to install 138 kV transmission lines primarily on wood tangent structures supported on horizontal post insulators, as this is a compact design that reduces EMF field strengths in comparison to other installations.

4906-6-05 (B)(9)(c): Estimated Cost

The estimated capital cost for Project is approximately $16,122,900, to be paid by ATSI.

4906-6-05 (B)(10): SOCIAL AND ECOLOGICAL IMPACTS

4906-6-05 (B)(10)(a): Land Uses

The Project is located within Woodville Township in Sandusky County, Ohio and Troy Township in Wood County, Ohio. Based on the US Bureau of Census estimates the 2010 population of Woodville Township was 3,395 and Troy Township was 3,870. The 2010 population estimates of Sandusky County was 60,944 and Wood County was 125,488. The Project area is in industrial/business park zoned land. No significant changes or impacts to the current land use is anticipated.

4906-6-05 (B)(10)(b): Agricultural Land

Agricultural land exists within the Project's disturbance area. Temporary disturbance areas associated with the Project will be located within some of these cultivated fields. A

list of all agricultural land and acreage including agricultural district land is given in Table 3.

Table 3: Agricultural Lands within the Project's Disturbance Area

Parcel Number	Property Owner	Acreage	Agricultural District	Agricultural District Expiration
282900000200	MORAN, PETER L	80.00	Yes	2021
U69-612-250000032000	CONRAD, SCOTT MICHAEL 7 KRISTINA ANN	22.78	Yes	2024
U69-612-260000003000	AVERS DALE J TRUSTEE	64.31	Yes	2020
U69-612-260000009000	PERRY THOMAS E & COLLEEN E	19.92	Yes	2021
U69-612-260000010000	CARTER RICHARD A & SANDRA R	16.98	Yes	2022
U69-612-260000025000	LOWE RAYMOND M & SUSAN R	19.10	Yes	2022

4906-6-05 (B)(10)(c): Archaeological or Cultural Resources

A search of Ohio Historic Preservation Office's ("OHPO") National Register of Historic Places ("NRHP") online database was conducted to identify the existence of any significant archaeological or cultural resource sites within 0.5 miles of the Project area. A map of the results of the search is shown in Exhibit 13. The OHPO database includes all Ohio listings on the NRHP, including districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The results of the search indicate that there are no Listed NRHP properties and no OHPO eligible properties identified within 0.5 miles of the Project's potential disturbance area. The OHPO database also includes listing of the Ohio Archaeological Inventory ("OAI"), the Ohio Historic Inventory ("OHI"), previous cultural resource surveys, and the Ohio Genealogical Society ("OGS") cemetery inventory. Seven (7) OAI archeological

resources (each within its own respective site) have been previously inventoried within 0.5 miles of the Project area. These resources are shown in Table 4. Two (2) OGS listed cemetery was previously inventoried within 0.5 miles of the Project area and is provided in Table 5.

Table 4. List of OAI Listed Archeological Resources and Sites

OAI Number	Affiliation	Description	County	Quad Name
SA0242	Prehistoric	Unknown	Sandusky	Elmore
SA0211	Prehistoric	Unknown	Sandusky	Pemberville
SA0213	Prehistoric	Unknown	Sandusky	Pemberville
SA0214	Prehistoric	Unknown	Sandusky	Pemberville
SA0215	Prehistoric	Unknown	Sandusky	Pemberville
SA0216	Prehistoric	Unknown	Sandusky	Pemberville
SA0217	Prehistoric	Unknown	Sandusky	Pemberville

Table 5. List of OGS Cemeteries

OGS ID	Name	County	Municipality
12909	Salem Lutheran-Salem-Schweitz	Wood	Troy Township
10743	Westwood	Sandusky	Woodville Township

Based upon the results of the OHPO online database there are no cultural resources within the Project's 60 foot wide right-of-way; therefore, no impacts to historical or cultural resources are anticipated.

4906-6-05 (B)(10)(d): Local, State and Federal Government Requirements

Table 6 shows the list of government agency requirements and the application status at the time of filing.

Table 6. List of Government Agency Requirements to be Secured Prior to Construction

Agency	Permit Requirement	Status
Ohio Environmental Protection Agency (OEPA)	General NPDES Construction Storm Water Permit	Will Be Filed
Sandusky and Wood County, Ohio, Soil and Water Conservation District	Storm Water Pollution Prevention Plan (SWP3) – Review Application	Will Be Filed
Sandusky County	Floodplain Development Review	Will Be Filed

4906-6-05 (B)(10)(e): Endangered, Threatened, and Rare Species Investigation

WSP Company, on behalf of ATSI, submitted a request to the Ohio Department of Natural Resources ("ODNR") Office of Real Estate to conduct an Environmental Review of the Project area on May 24, 2019. As part of the Environmental Review, the ODNR Office of Real Estate conducted a search of the ODNR Division of Wildlife's Natural Heritage Database to research the presence of any endangered, threatened, or rare species within one (1) mile of the Project area. The ODNR's Office of Real Estate's response on July 9, 2019 indicated that the Project area is within range of one (1) state and federally endangered species, one (1) state and federally threatened species, ten (10) state endangered species, and seven (7) state threatened species. A copy of ODNR's Office of Real Estate's response is included as Exhibit 14.

WSP Company, on behalf of ATSI, also submitted a request to the US Fish and Wildlife Service ("USFWS") for an Ecological Review on May 24, 2019, to research the presence of any endangered, threatened, or rare species within one (1) mile of the Project area. A copy of USFWS's Ecological Review response is included as Exhibit 15. The USFW's response on June 11, 2019 indicated that one (1) federally endangered species and (1) federally threatened species are within the range of the identified Project area. A list of all endangered, threatened, and rare species, as identified by ODNR and USFWS, is provided in Table 7.

The response from USFWS indicated the federal and state endangered Indiana bat (*Myotis sodalis*) and the federal threatened northern long-eared bat (*Myotis septentrionalis*) are within the range of the Project.

Table 7. List of Endangered, Threatened, and Rare Species

Common Name	Scientific Name	Federal Listed Status	State Listed Status	Affected Habitat
Indiana bat	*Myotis sodalis*	Endangered	Endangered	Trees & Forest
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Threatened	Trees & Forest
Cattle Egret	*Bubulcus ibis*	NA	Endangered	Wetlands, Pastures, & Fields
American bittern	*Botaurus lentiginosus*	NA	Endangered	Bogs, Meadows, & Swamps
Piping Plover	*Charadius melodus*	NA	Endangered	Sandy Beaches
Black Tern	*Chlidonias niger*	NA	Endangered	Inland Marshes
Northern Harrier	*Circus cyaneus*	NA	Endangered	Grasslands
King Rail	*Rallus elegans*	NA	Endangered	Marshes
Kirtland's Warbler	*Dendroica kirtlandii*	NA	Threatened	Jack Pine Trees
Upland Sandpiper	*Bartamia longicauda*	NA	Endangered	Grasslands
Blue-spotted Salamander	*Ambystoma laterale*	N/A	Endangered	Wet Prairies & Vernal Pools
Blanding's Turtle	*Emydoidea blandingii*	N/A	Threatened	Marshes, Ponds, Lakes, & Streams
American Eel	*Anguilla rostrata*	NA	Threatened	Streams & Rivers
Greater Redhorse	*Moxostoma valenciennesi*	NA	Threatened	Rivers
Western Banded Killfish	*Fundulus diaphanous menona*	NA	Endangered	Portage River

Lake Sturgeon	*Acipenser fulvescens*	N/A	Endangered	Lakes & Rivers
Black Sandshell	*Ligumia recta*	NA	Threatened	Rivers & Lakes
Threehorn Wartyback	*Obliquaria reflexa*	NA	Threatened	Rivers
Pondhorn	*Uniomerus tetralasmus*	NA	Threatened	Rivers

The response from ODNR and USFWS indicated the Project is within range of the federal and state endangered Indiana bat (*Myotis sodalis*) and the federal and state threatened Northern long-eared bat (*Myotis septentrionalis*). Within the Project disturbance area, tree clearing will be conducted between October 15 and March 31 to avoid impacts to these species. Furthermore, there are no caves or mine opening within the Project area and, therefore, no adverse effects to these species is anticipated.

The response from ODNR indicated the Project is within the range of the threehorn wartyback (*Obliquaria reflexa*), the pondhorn (*Uniomerus tetralasmus*, and the black sandshell (*Ligumia recta*), all state threatened mussels. No impacts to these species are expected due to the Project's location and because no in-stream work is proposed.

The response from ODNR indicated that the Project is within the range of the lake sturgeon (*Acipenser fulvescens*), the western banded killifish (*Fundulus diaphanous menona*), the American eel (*Anguilla rostrata*, and the greater redhorse (*Moxostoma valenciennesi*), all state threatened fish. No impacts to these species are expected due to the Project's location and because no in-stream work is proposed.

The response from ODNR indicated that the Project is within range of the Blanding's turtle (*Emydoidea blandingii*), a state threatened turtle. No impact to this species is expected due to the type of habitat within and surrounding the Project location.

The response from ODNR indicated that the Project is within the range of the eastern massasauga (*Sistrurus catenatus*), a state endangered and federally threatened snake. No

impact to this species is expected due to the type of habitat within and surrounding the Project location.

The response from ODNR indicated that the piping plover (*Charadrius melodus* and the Kirtland's warbler (*Setophaga kirtlandii*), state endangered and federally threatened birds are within range of the Project area. Due to the Project location no impact to these species are expected.

The response from ODNR indicated that the Project is within range of the northern harrier (*Circus cyaneus*), a state endangered bird. Impacts to large grasslands and marshes should be avoided during the nesting period of May 15 to August 1. No impact to this species is expected due to the type of habitat within and surrounding the Project location.

The response from ODNR indicated that the Project is within range of the cattle egret (*Bubulcus ibis*), a state endangered bird. Impacts to wetland and dry fields should be avoided during the nesting period of May 15 to August 15. No impact to this species is expected due to the type of habitat within and surrounding the Project location.

The response from ODNR indicated that the Project is within range of the king rail (*Rallus elegans*), a state endangered bird. Impacts to marshes should be avoided during the nesting period of May 1 to August 1. No impact to this species is expected due to the type of habitat within and surrounding the Project location.

The response from ODNR indicated that the Project is within range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Impacts to dry grasslands should be avoided during the nesting period of April 15 to July 31. No impact to this species is expected due to the type of habitat within and surrounding the Project location.

The response from ODNR indicated that the Project is within range of the black tern (*Chlidonias niger*), a state endangered bird. Impacts to inland marshes should be avoided

during the nesting period of April 1 to June 30. No impact to this species is expected due to the type of habitat within and surrounding the Project location.

The response from ODNR indicated that the Project is within range of the American bittern (*Botaurus lentiginous),* a state endangered bird. Impacts to bogs and large wet meadows should be avoided during the nesting period of May 1 to July 31. No impact to this species is expected due to the type of habitat within and surrounding the Project location.

Adverse impacts to state listed wildlife and plant species are not anticipated to result from the Project based on the current land use, surrounding setting, and absence of potential habitat for these species within the Project area.

4906-6-05 (B)(10)(f): Areas of Ecological Concern

WSP Company, on behalf of ATSI, submitted a request to the Ohio Department of Natural Resources ("ODNR") Office of Real Estate to conduct an Environmental Review on May 24, 2019. The ODNR Office of Real Estate researched the presence of any unique ecological sites, geological features, animal assemblages, scenic rivers, state wildlife areas, nature preserves, parks or forest, national wildlife refuges, or other protected natural areas within one (1) mile of the project area. The ODNR's Office of Real Estate's response on July 9, 2019 indicated that there are no records at or within a one-mile radius of the Project.

ATSI contracted WSP Company (WSP) to conduct a wetland and stream delineation of the Project area. WSP's assessment focused on an approximately 1-acre study area around the proposed footprint of the substation expansion area and approximately 3.2 miles by 60 feet wide along the transmission ROW.

WSP Company conducted an environmental survey of the Fostoria West End (AEP)-Lemoyne-West Fremont 138kV Transmission Line and Substation Upgrade Project area

on June 25, 2019. A total of 2 streams, totaling 154 linear feet, were identified within the Environmental Survey Corridor (ESC) as shown in Figures 3A-3F of Exhibit 16. Of the 2 streams, 1 stream was identified as an ephemeral stream and one was identified as a perennial stream. The ephemeral stream was assessed using the HHEI methodology (drainage area less than 1 mi^2) and the perennial stream was assessed using the QHEI methodology (drainage area greater than 1 mi^2). No wetlands or Ponds were identified within the Project ESC.

The two streams depicted on Figures 3A-3F of Exhibit 16 will be crossed above the Ordinary High Water Mark to avoid impacts. It is anticipated that the USACE will assert jurisdiction over all of the stream crossings identified due to their connection or proximity to Toussaint Creek or its tributaries. WSP has made preliminary determinations concerning the likely jurisdiction of all assessed features; however, the USACE will make the final determination. Further coordination with the USACE will occur, if necessary, prior to the submittal of any permit or construction activities.

The results of the environmental resource survey described in this report conducted by WSP are limited to what was identified within the ESC and depicted in Figure 3A- 3F of Exhibit 16. The information contained in this wetland and waterbody delineation report is for a study area that may be larger than the actual Project limits-of-disturbance for construction; therefore, lengths and acreages listed in this report may likely not constitute the actual impacts of the Project at the time of construction. If permits are necessary, actual impacted lengths and/or acreages will be submitted in subsequent permit applications.

Additionally, a review of the online FEMA Flood Insurance Rate Mapping was performed. The Project work limits at the southeast portion of the substation are located within a regulated floodplain and is included in Exhibit 17. Consultation with Sandusky County is required for a floodplain development review.

4906-6-05(B)(10)(g): Other Information

Construction and operation of the proposed Project will be in accordance with the requirements specified in the latest revision of the National Electric Safety Code as adopted by the PUCO and will meet all applicable safety standards established by the Occupational Safety and Health Administration.

No other or unusual conditions are expected that will result in significant environmental, social, health or safety impacts.

4906-6-07: Documentation of Letter of Notification Application Transmittal and Availability for Public Review

This Letter of Notification application is being provided concurrently to the following officials of the Woodville Township, Sandusky County, and Troy Township, Wood County, Ohio.

Sandusky County

Ms. Kay Reiter
Sandusky County Commissioner
622 Croghan Street
Fremont, OH 43420

Mr. Scott Miller
Sandusky County Commissioner
622 Croghan Street
Fremont, OH 43420

Mr. Russ Zimmerman
Sandusky County Commissioner
622 Croghan Street
Fremont, OH 43420

Mr. Carlos Baez, P.E., P.S.
Sandusky County Engineer
2500 West State Street
Fremont, OH 43420

Ms. Jill Simpson, President
Sandusky County Regional
Planning Committee
108 South Park Avenue
Fremont, OH 43420

Ms. Sandy Yohe, Office Manager
Sandusky County Soil & Water
District
2000 Countryside Drive, Suite A
Fremont, OH 43420

Woodville Township

Mr. Ken Green, Trustee
Woodville Township
321 East Main Street
P.O. Box 121
Woodville, OH 43469

Mr. Bill Hammer, Trustee
Woodville Township
321 East Main Street
P.O. Box 121
Woodville, OH 43469

Mr. Paul Runion, Trustee
Woodville Township
321 East Main Street
P.O. Box 121
Woodville, OH 43469

Ms. Lori Kepus, Fiscal Officer
Woodville Township
321 East Main Street
P.O. Box 121
Woodville, OH 43469

Wood County

Dr. Theodore Bowlus
Board of County Commissioners
One Courthouse Square, 5th Floor
Bowling Green, OH 43402

Mr. John Musteric
Wood County Engineer's Office
One Courthouse Square, 5th Floor
Bowling Green, OH 43402

Ms. Doris Herringshaw
Board of County Commissioners
One Courthouse Square, 5th Floor
Bowling Green, OH 43402

Mr. Dave Steiner, Director
Wood County Planning Commission
One Courthouse Square, 5th Floor
Bowling Green, OH 43402

Mr. Craig LaHote
Board of County Commissioners
One Courthouse Square, 5th Floor
Bowling Green, OH 43402

Mr. Jim Carter, District Admin.
Wood County Soil & Water District
1616 E. Wooster Street, Suite 32
Bowling Green, OH 43402

Troy Township

Mr. Matthew Brinker, Trustee
Troy Township
4707 Dowling Road
Perrysburg, OH 43551

Mr. Richard Greulich Jr., Trustee
Troy Township
23445 Stony Ridge Road
Perrysburg, OH 43551

Mr. Skip Recker, Chairman
Troy Township
1651 Ottawa Road
Genoa, OH 43430

Ms. Linda Biniker, Fiscal Officer
Troy Township
5929 Fremont Pike
P.O. Box 205
Stony Ridge, OH 43463

Libraries

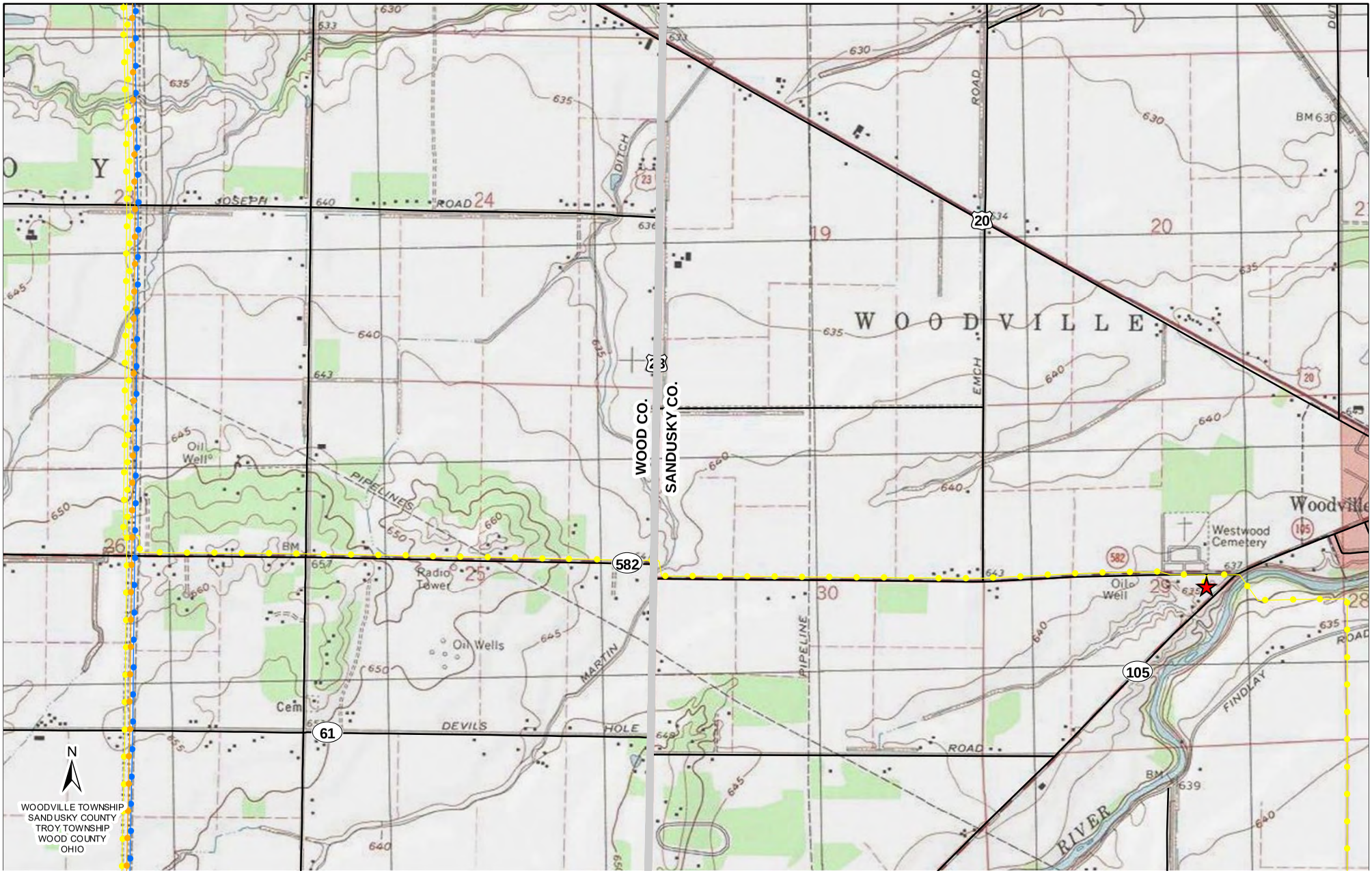
Luckey Branch Library
Ms. Susan Titkemeier, Director
228 Main Street
Luckey, OH 43443

Woodville Public Library
Ms. Pam Hoesman, Director
101 East Main Street
Woodville, OH 43469

Copies of the transmittal letters to these officials have been included with the package submitting this Letter of Notification application to the Ohio Power Siting Board and are

being provided to meet the requirement of OAC Rule 4906-6-07 (B) to submit proof of compliance with the notice requirement to local officials found in OAC Rule 4906-6-07 (A)(1).

Information concerning this Letter of Notification application is also posted at the link below and how to request an electronic or paper copy of the application. The link to the website is being provided to meet the requirement of OAC 4906-6-07 Rule (B) and to provide the OPSB with proof of compliance with the notice requirements in OAC 4906-6-Rule 07 (A)(3): https://www.firstenergycorp.com/about/transmission_projects/ohio.html



LEGEND:

- Substation
- Fostoria West End (AEP)-Lemoyne-West Fremont 138kV
- Fostoria Central-Lemoyne 345kV
- Fostoria Central-Lallendorf 345kV
- Major Roads

0 1,000 2,000 4,000

Feet

Reference:
USGS Topographical Overlay; ODOT

Coordinate System:
NAD 1983 StatePlane Ohio North FIPS 3401 Feet
Projection: Lambert Conformal Conic; Units: Foot US

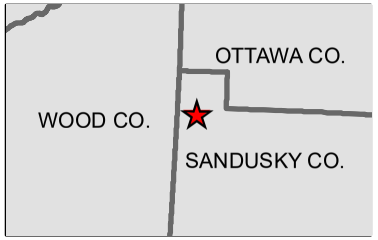
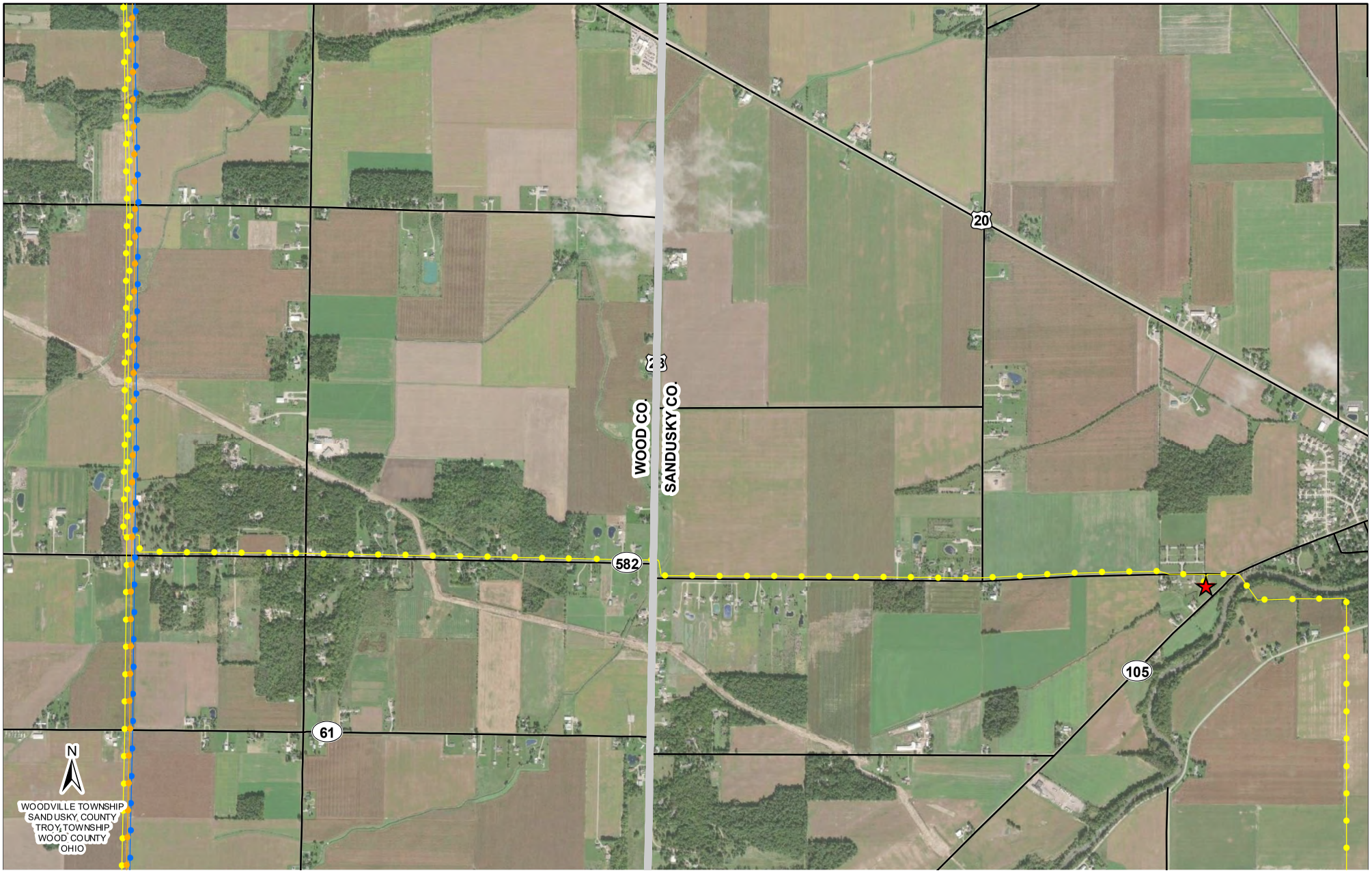


EXHIBIT 1

FirstEnergy

Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV Transmission Line and Woodville No. 2 Substation Upgrade Project



LEGEND:

- Substation
- Fostoria West End (AEP)-Lemoyne-West Fremont 138kV
- Fostoria Central-Lemoyne 345kV
- Fostoria Central-Lallendorf 345kV
- Major Roads

0 1,000 2,000 4,000

Feet

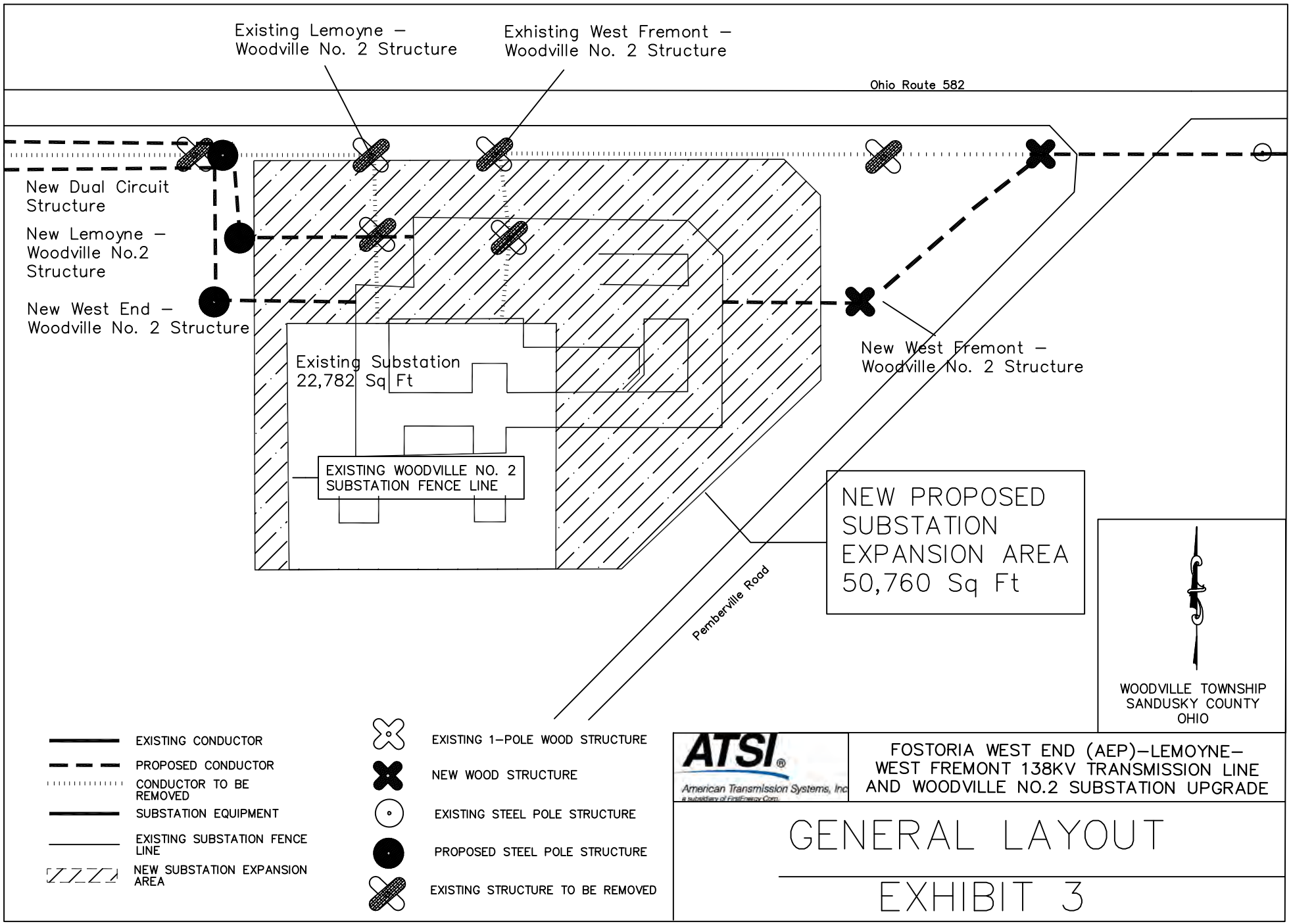
Reference:
ESRI Imagery Overlay; ODOT

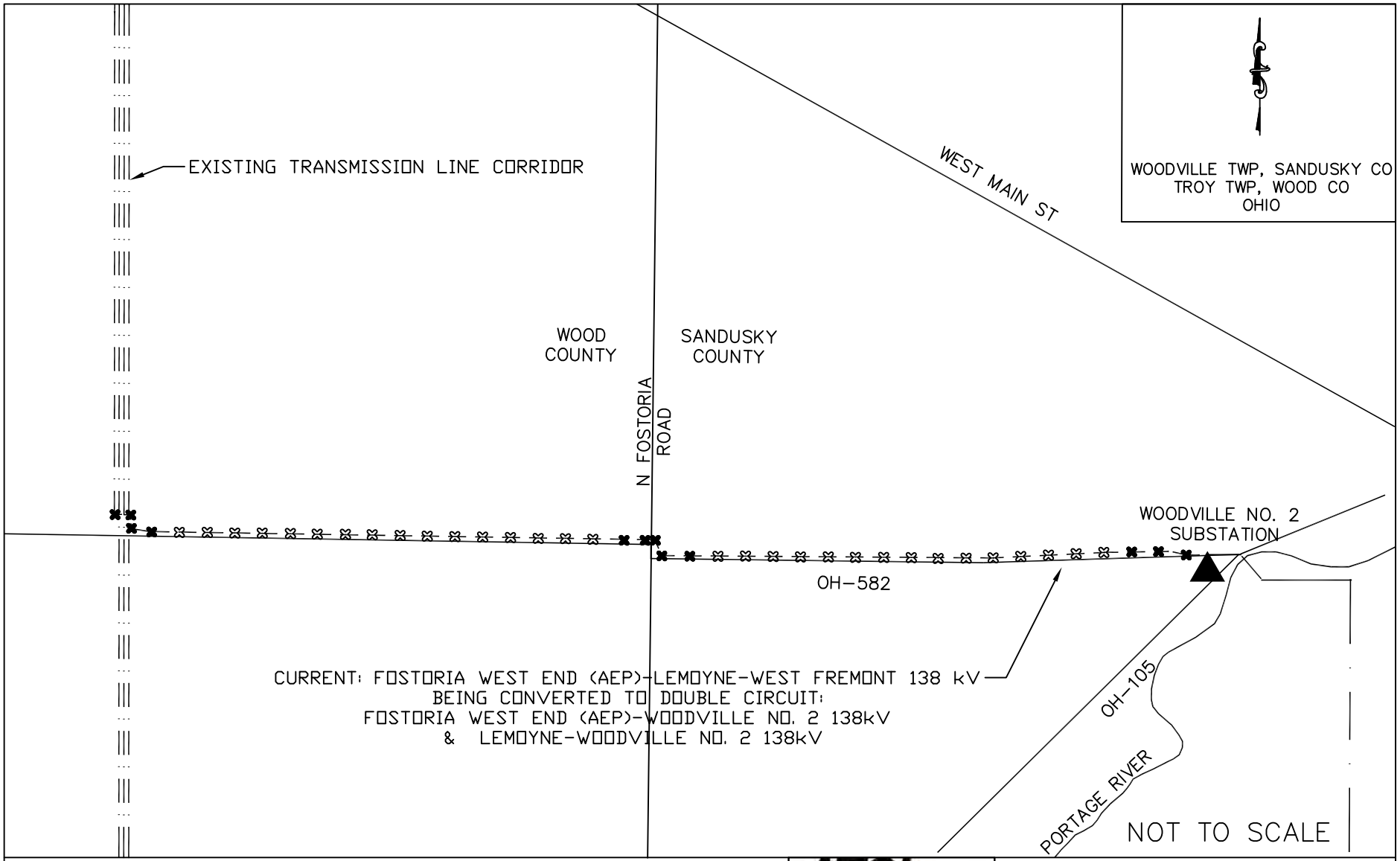
Coordinate System:
NAD 1983 StatePlane Ohio North FIPS 3401 Feet
Projection: Lambert Conformal Conic; Units: Foot US

EXHIBIT 2

FirstEnergy

Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV Transmission Line and Woodville No. 2 Substation Upgrade Project


Existing Lemoyne – Woodville No. 2 Structure
Exhisting West Fremont – Woodville No. 2 Structure
Ohio Route 582
New Dual Circuit Structure
New Lemoyne – Woodville No.2 Structure
New West End – Woodville No. 2 Structure
Existing Substation 22,782 Sq Ft
EXISTING WOODVILLE NO. 2 SUBSTATION FENCE LINE
New West Fremont – Woodville No. 2 Structure
NEW PROPOSED SUBSTATION EXPANSION AREA 50,760 Sq Ft
Pemberville Road
WOODVILLE TOWNSHIP
SANDUSKY COUNTY
OHIO
EXISTING CONDUCTOR
PROPOSED CONDUCTOR
CONDUCTOR TO BE REMOVED
SUBSTATION EQUIPMENT
EXISTING SUBSTATION FENCE LINE
NEW SUBSTATION EXPANSION AREA
EXISTING 1–POLE WOOD STRUCTURE
NEW WOOD STRUCTURE
EXISTING STEEL POLE STRUCTURE
PROPOSED STEEL POLE STRUCTURE
EXISTING STRUCTURE TO BE REMOVED
ATSI
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.
FOSTORIA WEST END (AEP)–LEMOYNE–
WEST FREMONT 138KV TRANSMISSION LINE
AND WOODVILLE NO.2 SUBSTATION UPGRADE
GENERAL LAYOUT
EXHIBIT 3



LEGEND

- NEW STEEL STRUCTURE
- NEW WOOD STRUCTURE
- EXISTING SUBSTATION
- NEW 138 kV CONDUCTOR
- EXISTING TRANSMISSION LINE
- EXISTING ROADS

ATSI® American Transmission Systems, Inc. a subsidiary of FirstEnergy Corp.

FOSTORIA WEST END (AEP)–LEMOYNE–WEST FREMONT 138KV TRANSMISSION LINE AND WOODVILLE NO.2 SUBSTATION UPGRADE

GENERAL LAYOUT

EXHIBIT 3A

EXHIBIT 4

ATSI Transmission Zone: Supplemental
Lemoyne-Woodville-Fostoria 138 kV Four-Terminal Line Elimination Project

Problem Statement (Scope and Need/Drivers):

Operational Flexibility and Efficiency

- Improve system protection, coordination, and fault location under existing four-terminal line configuration. Line exposure is greater than 28 miles.
- Improve operational flexibility during maintenance and restoration efforts.
- Provide additional load and voltage support for the Woodville 34.5 kV system.

Potential Solution:

Lemoyne-Woodville-Fostoria 138 kV Four-Terminal Line Elimination Project

- Eliminate four terminal point on the Lemoyne-Woodville-Fostoria 138 kV line.
- Rebuild approximately 3.1 miles of existing 138 kV line to double circuit with 477 ACSR conductor.
- Expand the existing 138 kV Woodville substation to a five (5) breaker (future 6-breaker) ring bus.
- Reconfigure the existing Woodville tap location and Woodville substation to create:
  - Lemoyne-Woodville 138 kV line
  - Woodville-Fostoria 138 kV line
  - Woodville-West Fremont 138 kV line

Alternatives Considered: None

Estimated Project Cost: $11.3M

Projected IS Date: 06/01/2020

Status: Conceptual

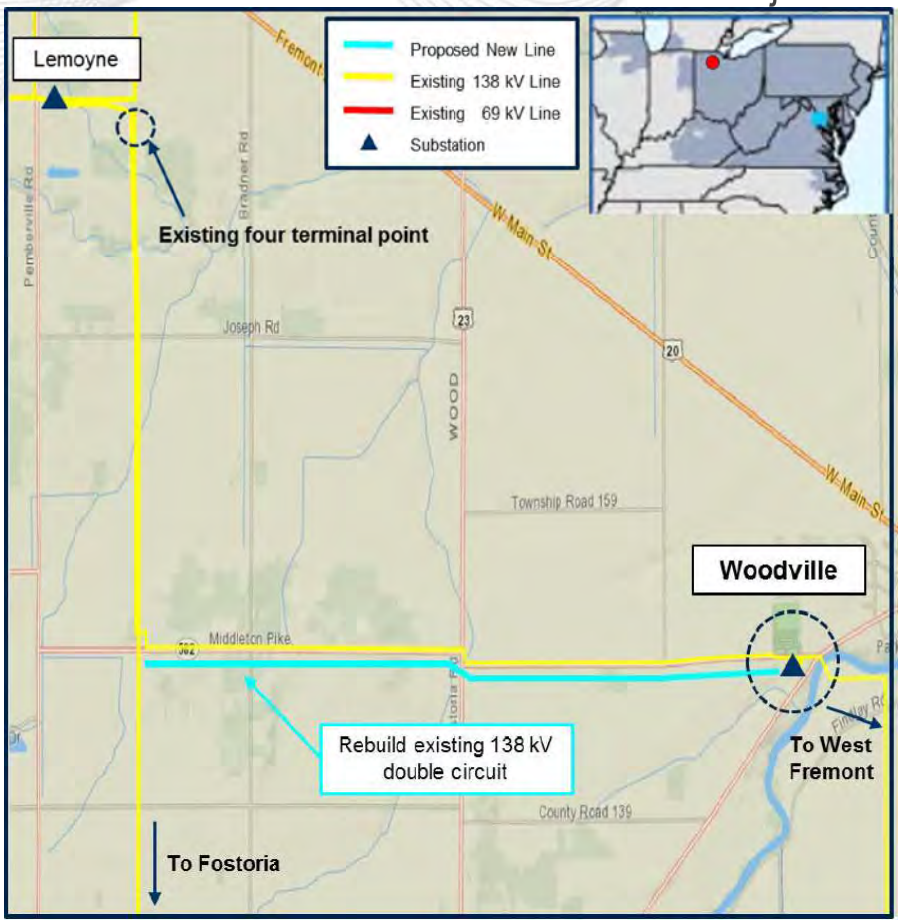


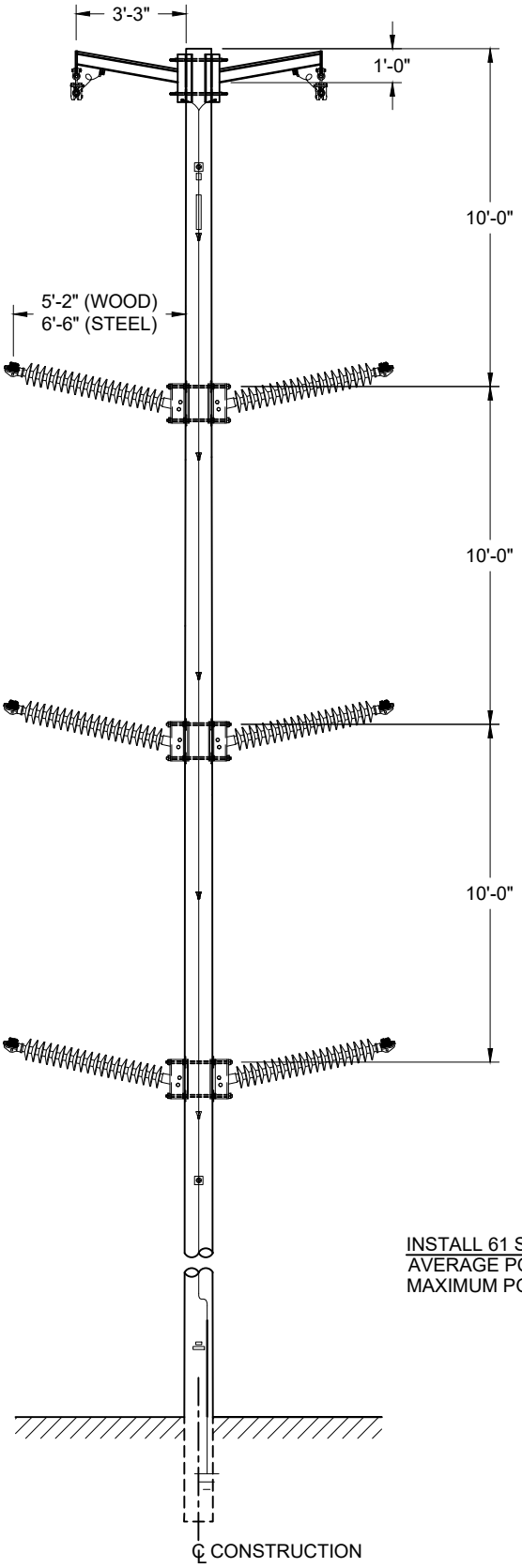
Exhibit 5
Property Owners Affected by the
Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV Transmission Line
and Substation Upgrade Project
Case No. 19-1337-EL-BLN

Property Owners

Parcel ID	Owner Name	Address	Easement Status
U69-612-260000009000	Perry Thomas E & Colleen E	2606 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-260000003000	Avers Dale J Trustee	2873 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-260000010000	Carter Richard A & Sandra R	2450 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-260000001500, U69-612-260000001001	Kriston Andrew & Gayle	20565 Bradner Rd, Luckey, OH, 43443	Existing; to be Modified
U69-612-260000011000, U69-612-260000012000, U69-612-260000013000	Oberhouse Steven R & Deborah L	2354 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-260000015000, U69-612-260000014000, U69-612-260000016000	Burke Todd J & Burke Sarah A	2262 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-260000017000, U69-612-260000018000	Harpel Lucas M & Ashley M	2240 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-260000019000	Richardson James J & Annette L	2196 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-260000046000	Rentz William O & Susan L	20533 Bradner Rd, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000009000, U69-612-250000008000	Krotzer Richard E	1980 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000010501	Poiry Lawrence & Christie	326 Harding Ave, Northwood, OH, 43619	Existing; to be Modified
U69-612-250000010502	Sheldrick Alexis L & Jacob M	1832 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000010503	Couch James H Jr & Sharon K	1776 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000010504	Tressel Timothy J & Susan M	1738 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified

Parcel ID	Owner Name	Address	Easement Status
U69-612-250000012000, U69-612-250000010500	Holliday Edgar & Judith	1560 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000014000	Huss Susan Kay	1442 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000013000	Mundrick Daniel J & Ashley N	1458 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000002000	Moritz Betty L / Moritz John A	13 Drba Way, New Castle, DE, 19720	Existing; to be Modified
U69-612-250000001001	Haar Richard A & Debrah	1226 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000001006	Prey Donald G & Patricia A	1166 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000001005	Cleveland Kelly	1110 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
U69-612-250000001008	Myers Loren D	1050 Middleton Pike, Luckey, OH, 43443	Existing; to be Modified
283000001501	Crouse, Paul W & Roger P	2922 Bays Rd, Risingsun, OH, 43457	Existing; to be Modified
283000001500, 283000000100	American Title Agency Inc	19410 Dunbridge Rd, Bowling Green, OH, 43402	Existing; to be Modified
283000000200	Leking, Christopher G	1113 Gibsonburg Rd, Bradner, OH, 43406	Existing; to be Modified
283000000409	Baumgartner Steven A & Kimberly A	7214 Sr 582, Woodville, OH, 43469	Existing; to be Modified
283000000410	Chagnon, James A & Margaret Baker	7192 Sr 582, Woodville, OH, 43469	Existing; to be Modified
283000000405	Harrington Timothy D & Michele Ann	7180 Sr 582, Woodville, OH, 43469	Existing; to be Modified
283000000404	Ahrens, Sherri L	7163 Sr 582, Woodville, OH, 43469	Existing; to be Modified
283000000401	Rood, Jeffery P & Karen	7150 Sr 582, Woodville, OH, 43469	Existing; to be Modified
283000000402	Tipton, Gary R & Susan J	7138 Sr 582, Woodville, OH, 43469	Existing; to be Modified
283000000403	Bankey, Troy W & Jennifer L	3868 Cr 16, Woodville, OH, 43469	Existing; to be Modified
282900000200	Moran, Peter L	4912 Skelly Rd, Toledo, OH, 43623	Existing; to be Modified
282900000600	Nedelco, Jeff & Migliori, Donna	6845 W Sr 582, Woodville, OH, 43469	Existing; to be Modified
282900000502	Kelley, Robert E & Linda M	6833 Sr 582, Woodville, OH, 43469	Existing; to be Modified
282900000504	Kelley, Krista L	6821 Sr 582, Woodville, OH, 43469	Existing; to be Modified
282900000500	Konesky, Emil J Trustee	842 Pemberville Rd, Woodville, OH, 43469	Existing; to be Modified
282900000503	Judy, Steven A	846 Pemberville Rd, Woodville, OH, 43469	Existing; to be Modified

DOUBLE CIRCUIT TANGENT W/POST INSULATOR
WOOD AND DIRECT EMBED STEEL

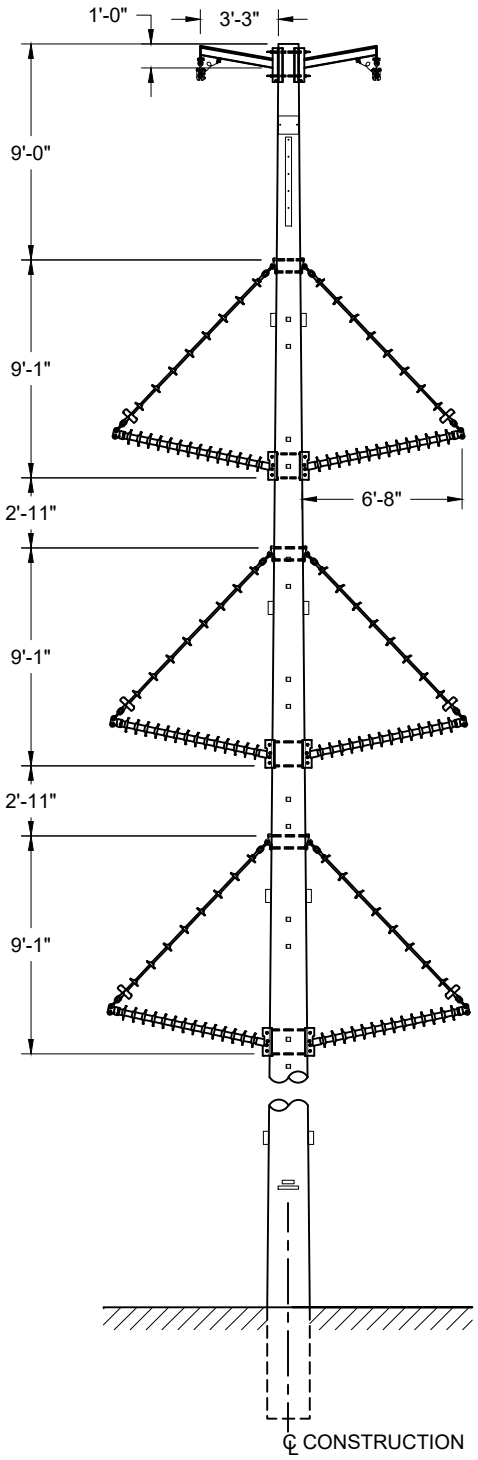


INSTALL 61 STRUCTURES
AVERAGE POLE HEIGHT ABOVE GROUND: 88'
MAXIMUM POLE HEIGHT ABOVE GROUND: 101.5'

PAPER SIZE: 8.5X11

ISSUE DATE: 08/19 ☐ CONSTRUCTION ☐ AS BUILT ☐ RECORD	DR. DLF/RUE 06/19	C.E. 18–113–TE	LEMOYNE–WOODVILLE #2 138kV FOSTORIA WEST END (AEP)–WOODVILLE #2 138 kV TANGENT #1				
	CHK. SEC/RUE 06/19	ORDER NO. 15738276,15892827					
	INS. BMG/RUE 06/19	WBS R/W TW–001527					
	APP. SEB/RUE 06/19	SCALE NTS	FirstEnergy Transmission Design	ASSET/OP. CO. TE	DWG NO. EXHIBIT 6	SHEET	REV.

DOUBLE CIRCUIT TANGENT W/BRACED POST
DIRECT EMBED STEEL



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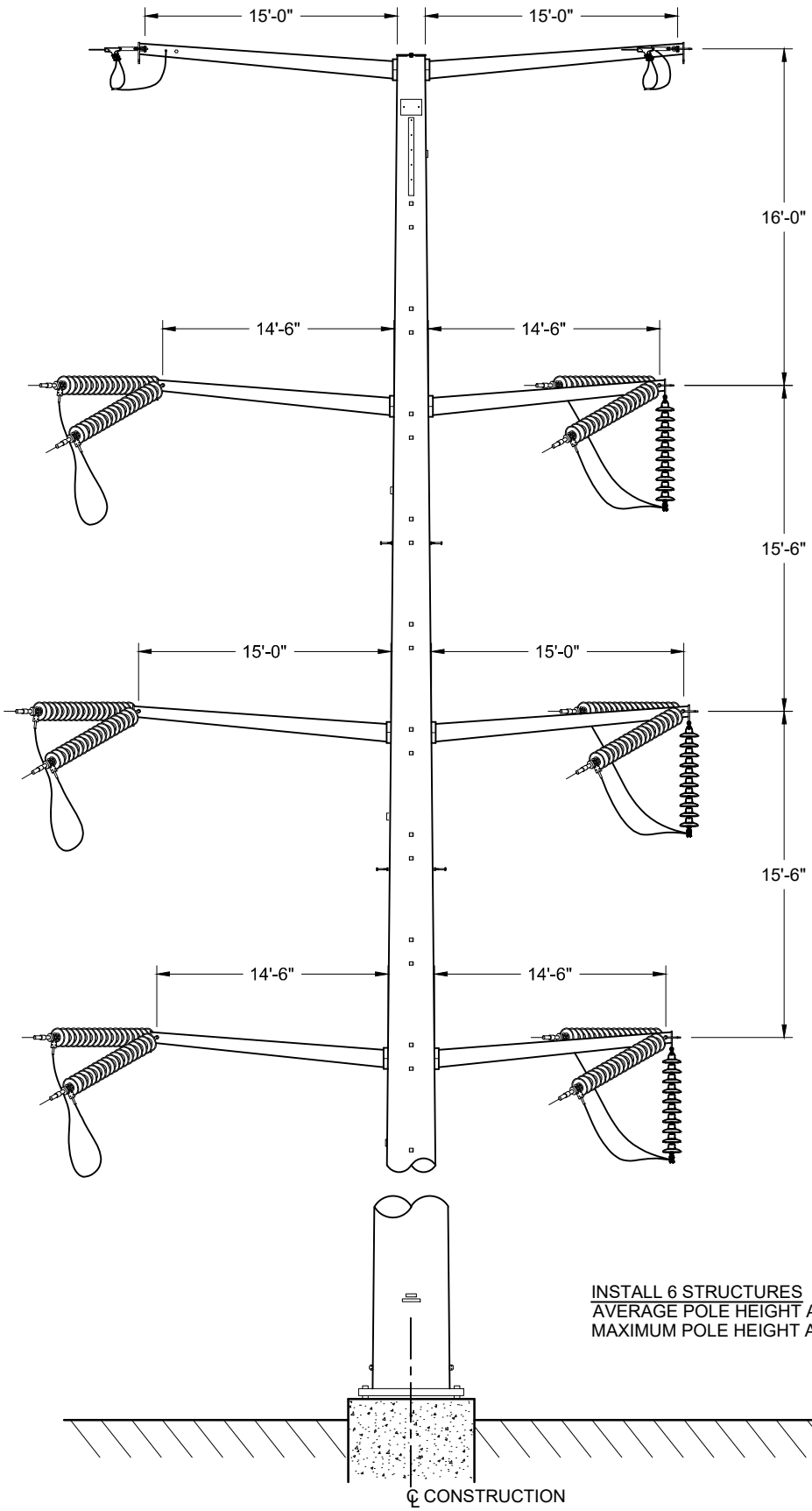
AVERAGE POLE HEIGHT ABOVE GROUND: 106'
MAXIMUM POLE HEIGHT ABOVE GROUND: 110.5'

PAPER SIZE: 8.5X11

ISSUE DATE: 08/19 ☐ CONSTRUCTION ☐ AS BUILT ☐ RECORD	DR. DLF/RUE 06/19 CHK. SEC/RUE 06/19 INS. BMG/RUE 06/19 APP. SEB/RUE 06/19	C.E. 18–113–TE ORDER NO. 15738276,15892827 WBS TW–001527 R/W SCALE NTS	LEMOYNE–WOODVILLE #2 138 kV FOSTORIA WEST END (AEP)–WOODVILLE #2 138 kV TANGENT #2			
			FirstEnergy. Transmission Design	ASSET/OP. CO. TE	DWG NO. EXHIBIT 7	SHEET / REV.

DOUBLE CIRCUIT DEAD-END 50° - 90°
STEEL ON FOUNDATION



INSTALL 6 STRUCTURES
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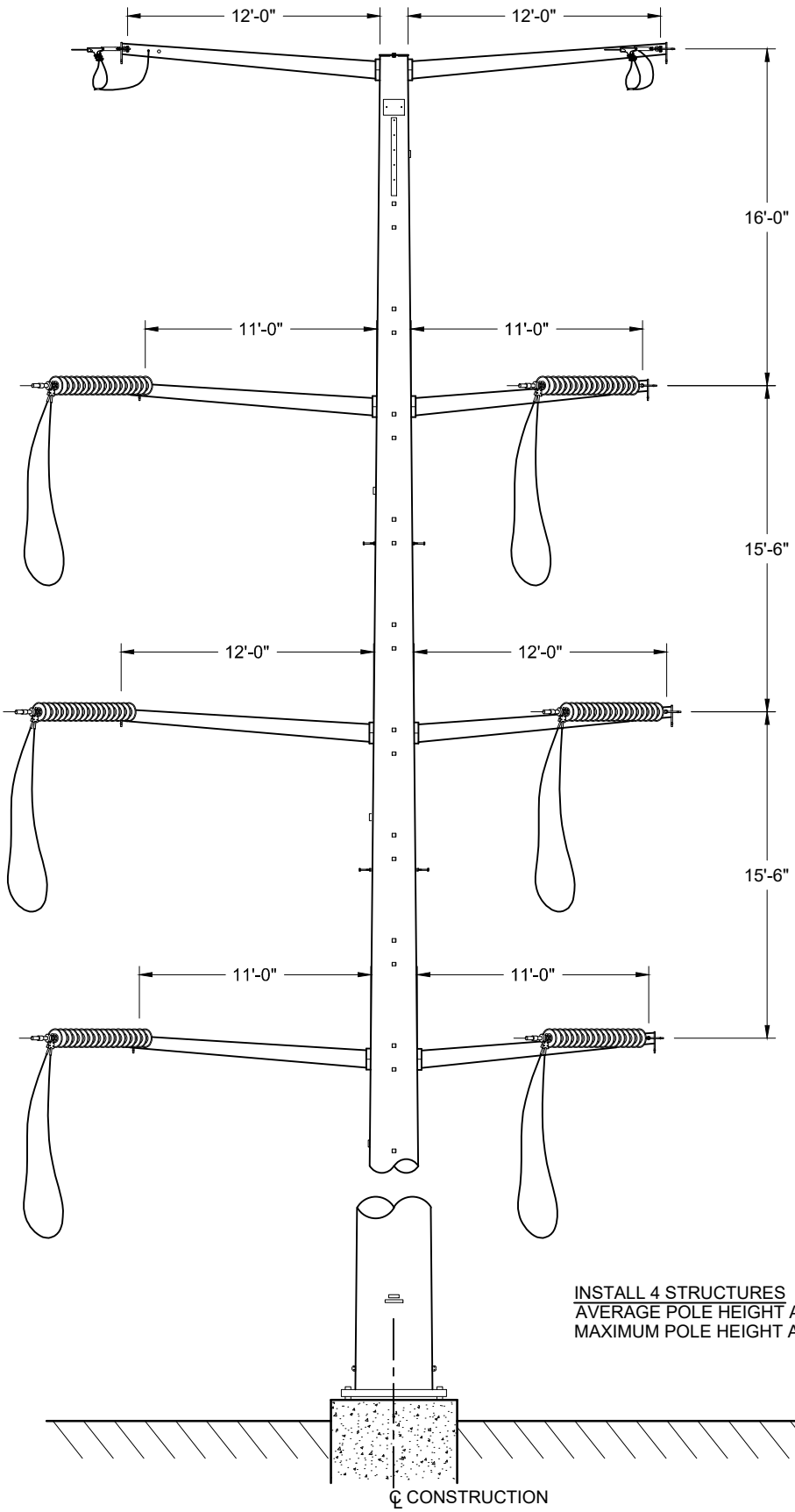
MAXIMUM POLE HEIGHT ABOVE GROUND: 110'

PAPER SIZE: 8.5X11

ISSUE DATE: 08/19 ☐ CONSTRUCTION ☐ AS BUILT ☐ RECORD	DR. DLF/RUE 06/19	C.E. 18–113–TE	LEMOYNE–WOODVILLE #2 138 kV FOSTORIA WEST END (AEP)–WOODVILLE #2 138 kV DEAD–END #1			
	CHK. SEC/RUE 06/19	ORDER NO. 15738276,15892827				
	INS. BMG/RUE 06/19	WBS TW–001527 R/W				
	APP. SEB/RUE 06/19	SCALE NTS	FirstEnergy. Transmission Design	ASSET/OP. CO. TE	DWG NO. EXHIBIT 8	SHEET / REV.

DOUBLE CIRCUIT DEAD-END 0° - 50°
STEEL ON FOUNDATION

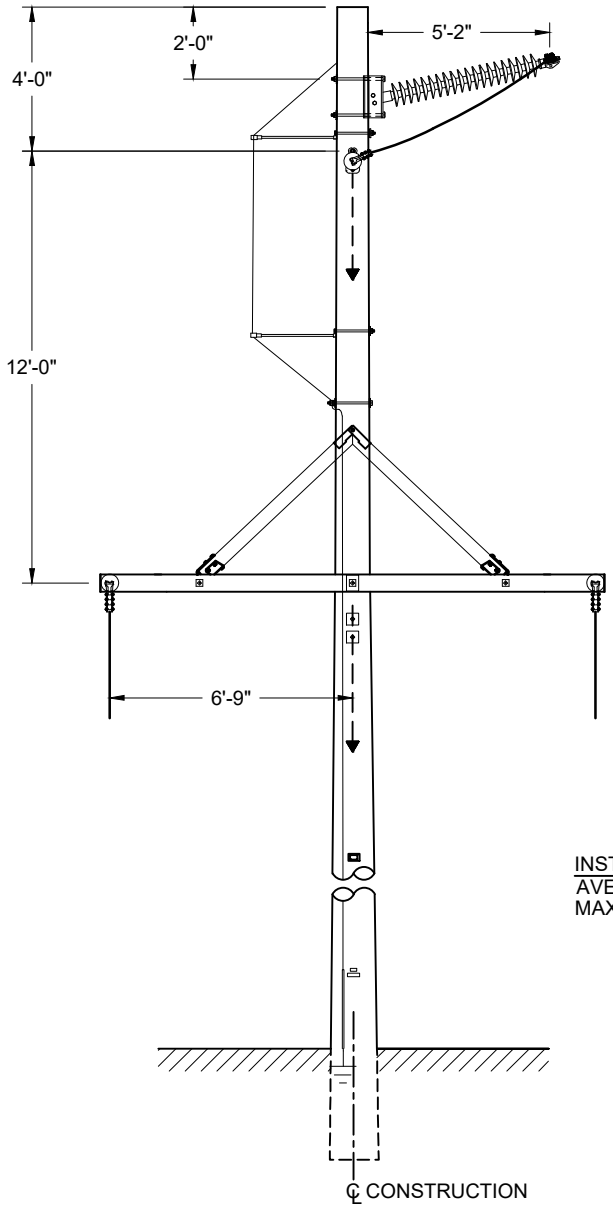


INSTALL 4 STRUCTURES
AVERAGE POLE HEIGHT ABOVE GROUND: 110'
MAXIMUM POLE HEIGHT ABOVE GROUND: 110'

PAPER SIZE: 8.5X11

ISSUE DATE: 08/19 ☐ CONSTRUCTION ☐ AS BUILT ☐ RECORD	DR. DLF/RUE 06/19	C.E. 18–113–TE	LEMOYNE–WOODVILLE #2 138 kV FOSTORIA WEST END (AEP)–WOODVILLE #2 138 kV DEAD–END #2			
	CHK. SEC/RUE 06/19	ORDER NO. 15738276,15892827				
	INS. BMG/RUE 06/19	WBS TW–001527 R/W				
	APP. SEB/RUE 06/19	SCALE NTS	FirstEnergy. Transmission Design	ASSET/OP. CO. TE	DWG NO. EXHIBIT 9	SHEET / REV.

SINGLE CIRCUIT DEAD-END
STRAIN WOOD



INSTALL 4 STRUCTURES
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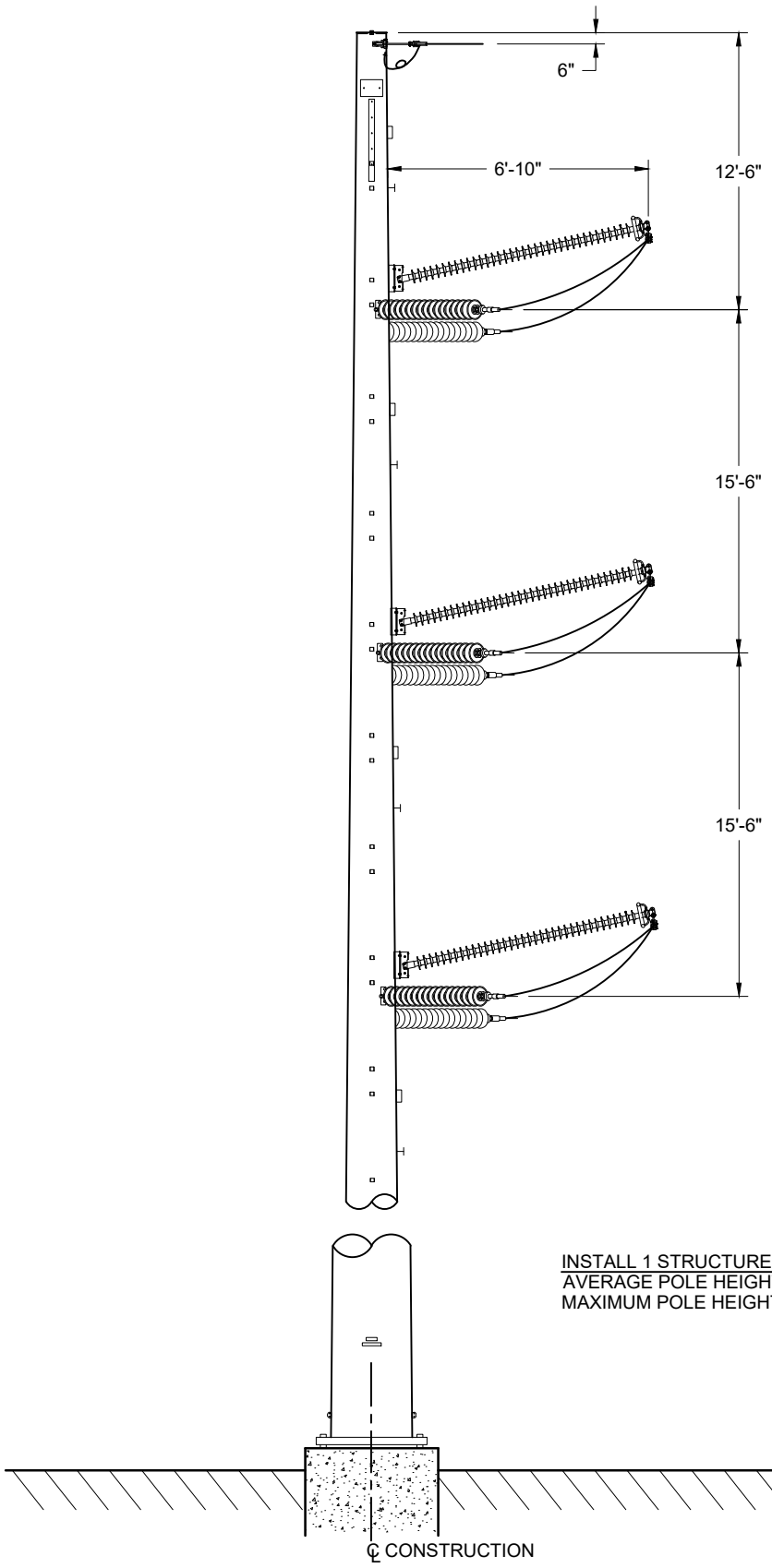
MAXIMUM POLE HEIGHT ABOVE GROUND: 56.5'

PAPER SIZE: 8.5X11

ISSUE DATE: 08/19 ☐ CONSTRUCTION ☐ AS BUILT ☐ RECORD	DR. DLF/RUE 06/19	C.E. 18–113–TE	LEMOYNE–WOODVILLE #2 138 kV FOSTORIA WEST END (AEP)–WOODVILLE #2 138 kV DEAD–END #3			
	CHK. SEC/RUE 06/19	ORDER NO. 15738276,15892827				
	INS. BMG/RUE 06/19	WBS TW–001527 R/W				
	APP. SEB/RUE 06/19	SCALE NTS	FirstEnergy Transmission Design	ASSET/OP. CO. TE	DWG NO. EXHIBIT 10	SHEET / REV.

SINGLE CIRCUIT DEAD-END
STEEL ON FOUNDATION



INSTALL 1 STRUCTURE
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MAXIMUM POLE HEIGHT ABOVE GROUND: 105'

PAPER SIZE: 8.5X11

ISSUE DATE: 08/19 ☐ CONSTRUCTION ☐ AS BUILT ☐ RECORD	DR. DLF/RUE 06/19	C.E. 18–113–TE	FOSTORIA WEST END (AEP)–WOODVILLE #2 138 kV DEAD–END #4				
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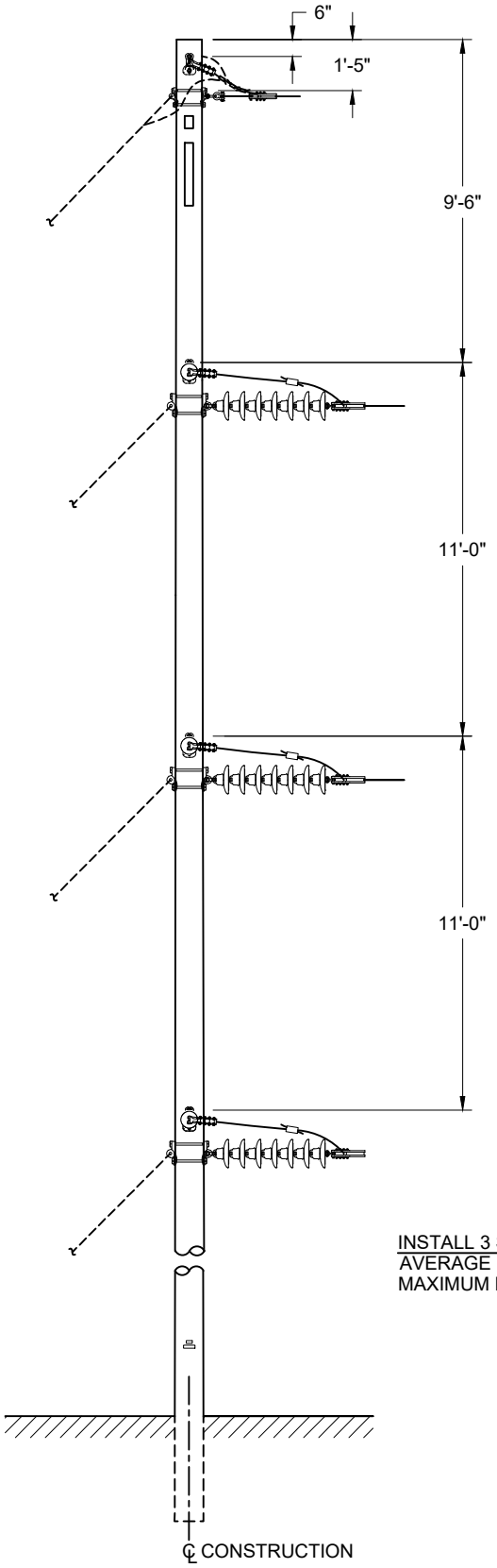
	INS. BMG/RUE 06/19	WBS TW–001527 R/W					
	APP. SEB/RUE 06/19	SCALE NTS	FirstEnergy Transmission Design	ASSET/OP. CO. TE	DWG NO. EXHIBIT 11	SHEET	REV.

SINGLE CIRCUIT DEAD-END
WOOD



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MAXIMUM POLE HEIGHT ABOVE GROUND: 92.5'

PAPER SIZE: 8.5X11

ISSUE DATE: 08/19 ☐ CONSTRUCTION ☐ AS BUILT ☐ RECORD	DR. DLF/RUE 06/19 CHK. SEC/RUE 06/19 INS. BMG/RUE 06/19 APP. SEB/RUE 06/19	C.E. 18-113-TE, 18-185-TE ORDER NO. 15892827, 15898736 WBS R/W TW-001527 SCALE NTS	FOSTORIA WEST END (AEP)–WOODVILLE #2 138 kV WEST FREMONT–WOODVILLE #2 138 kV DEAD–END #5				
			FirstEnergy Transmission Design	ASSET/OP. CO. TE	DWG NO. EXHIBIT 12	SHEET	REV.

LEGEND:

- 138 kV Transmission Line
- 0.5-Mile Buffer
- †† OGS Cemeteries

0 1,000 2,000 4,000

Feet

Reference:
ESRI Aerial Imagery, Ohio SHPO

Coordinate System:
NAD 1983 StatePlane Ohio North FIPS 3401 Feet
Projection: Lambert Conformal Conic; Units: Foot US

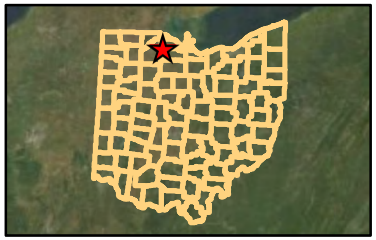


EXHIBIT 13

FirstEnergy

Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV Transmission Line and Woodville No. 2 Substation Upgrade Project

LEGEND:

- 138 kV Transmission Line
- 0.5-Mile Buffer
- †† OGS Cemeteries

0 1,000 2,000 4,000

Feet

Reference:
ESRI Aerial Imagery, Ohio SHPO

Coordinate System:
NAD 1983 StatePlane Ohio North FIPS 3401 Feet
Projection: Lambert Conformal Conic; Units: Foot US

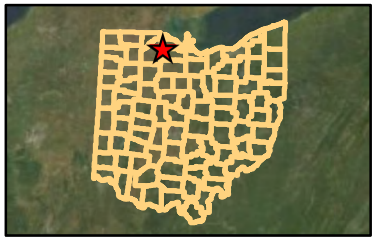


EXHIBIT 13

FirstEnergy

Fostoria West End (AEP)-Lemoyne-West Fremont 138 kV Transmission Line and Woodville No. 2 Substation Upgrade Project

EXHIBIT 14

Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR — MARY MERTZ, DIRECTOR

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

July 9, 2019

Matthew Thomayer
WSP USA
312 Elm Street, Suite 2500
Cincinnati, Ohio 45202

Re: 19-474; Lemoyne-Woodville #2-Fostoria 138 kV Electric Transmission Line Project

Project: The proposed project involves the rebuilding of approximately 3.2-miles of the existing Lemoyne-Woodville #2-Fostoria 138 kV Transmission Line and expansion of the existing Woodville #2 Substation.

Location: The proposed project is located in Woodsville Township, Sandusky 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 no records at or within a one-mile radius of the project area:

A review of the Ohio Natural Heritage Database indicates there are no other records of state endangered or threatened plants or animals within the project area. There are also no records of state potentially threatened plants, special interest or species of concern animals, or any federally listed species. In addition, we are unaware of any unique ecological sites, geologic features, animal assemblages, scenic rivers, state wildlife areas, state nature preserves, state or national parks, state or national forests, national wildlife refuges, or other protected natural areas within the project area. The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980.

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

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

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

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

The project is within the range of the threehorn wartyback (*Obliquaria reflexa*), a state threatened mussel, the pondhorn (*Uniomerus tetralasmus*), a state threatened mussel, and the black sandshell (*Ligumia recta*), a state threatened mussel. Due to the location, and that there is no in-water work proposed in a perennial stream of sufficient size, this project is not likely to impact these species.

The project is within the range of the lake sturgeon (*Acipenser fulvescens*), a state endangered fish, the western banded killifish (*Fundulus diaphanous menona*), a state endangered species, the American eel (*Anguilla rostrata*), a state threatened fish, and the greater redhorse (*Moxostoma valenciennesi*), a state threatened fish. The DOW recommends no in-water work in perennial streams from April 15 to June 30 to reduce impacts to indigenous aquatic species and their habitat. If no in-water work is proposed in a perennial stream, this project is not likely to impact these species.

The project is within the range of the Blanding's turtle (*Emydoidea blandingii*), a state threatened species. This species inhabits marshes, ponds, lakes, streams, wet meadows, and swampy forests. Although essentially aquatic, the Blanding's turtle will travel over land as it moves from one wetland to the next. Due to the location, the type of 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 eastern massasauga (*Sistrurus catenatus*), a state endangered and federally threatened snake species. The eastern massasauga uses a range of habitats including wet prairies, fens, and other wetlands, as well as adjacent drier upland habitat. Due to the location, the type of 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 piping plover (*Charadrius melodus*), a state endangered, and federally endangered bird, and the Kirtland's warbler (*Setophaga kirtlandii*), a state endangered and federally endangered bird. Due to the location, this project is not likely to have an impact on these species.

The project is within the range of the American bittern (*Botaurus lentiginosus*), a state endangered bird. Nesting bitterns prefer large undisturbed wetlands that have scattered small pools amongst dense vegetation. They occasionally occupy bogs, large wet meadows, and dense shrubby swamps. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the black tern (*Chlidonias niger*), a state endangered bird. The black tern prefers large, undisturbed inland marshes with fairly dense vegetation and pockets of open water. They nest in various kinds of marsh vegetation, but cattail marshes are generally favored. Nests are built on top of muskrat houses or on top of floating vegetation. If this type of habitat will be impacted, construction should be avoided in this habitat from April 1 to June 30 to reduce impacts to this species. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the king rail (*Rallus elegans*), a state endangered bird. Nests for this species are deep bowls constructed out of grass and usually hidden very well in marsh vegetation. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 1 to August 1. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the cattle egret (*Bubulcus ibis*), a state endangered bird. Cattle egrets are not strictly wetland birds. They often forage in dry pastures and fields. Egrets nest in colonies and will build a nest out of sticks and other materials wherever it can be supported. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 15. If no wetland habitat will be impacted, this project is not likely to impact this species.

The project is within the range of the upland sandpiper (*Bartramia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program (CRP). If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 to July 31. If this type of habitat will not be impacted, this project is not likely to impact this species.

The project is within the range of the northern harrier (*Circus cyaneus*), a state endangered bird. This is a common migrant and winter species. Nesters are much rarer, although they occasionally breed in large marshes and grasslands. Harriers often nest in loose colonies. The female builds a nest out of sticks on the ground, often on top of a mound. Harriers hunt over grasslands. If this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of May 15 to August 1. If this habitat will not be impacted, the 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 Sarah Tebbe, Environmental Specialist, at (614) 265-6397 or Sarah.Tebbe@dnr.state.oh.us if you have questions about these comments or need additional information.

John Kessler
Environmental Services Administrator

EXHIBIT 15

Thomayer, Matthew

From: susan_zimmermann@fws.gov on behalf of Ohio, FW3 <ohio@fws.gov>
Sent: Tuesday, June 11, 2019 1:51 PM
To: matt.thomayer@wsp.com
Subject: ATSI/FirstEnergy Lemoyne-Woodville #2 Fostoria 138kV Trans Line Rebuild, Wood and Sandusky Counties

External

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# 03E15000-2019-TA-1298

Dear Mr. Thomayer,

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

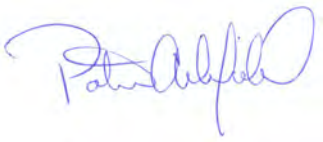
FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project type, size, location, and the proposed implementation of seasonal tree cutting (clearing of trees ≥3 inches diameter at breast height between October 1 and March 31) to avoid impacts to the federally listed endangered Indiana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

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

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), ESA, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document. We recommend that the project be coordinated with the Ohio Department of Natural Resources due to the potential for the project to affect state listed species and/or state lands. Contact John Kessler, Environmental Services Administrator, at (614) 265-6621 or at john.kessler@dnr.state.oh.us.

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

Sincerely,



Patrice M. Ashfield
Field Office Supervisor

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EXHIBIT 16

WETLAND AND STREAM DELINEATION REPORT

LEMOYNE-WOODVILLE #2-FOSTERIA 138 KV TRANSMISSION LINE REBUILD AND EXPANSION OF WOODVILLE #2 SUBSTATION PROJECT

WOOD AND SANDUSKY COUNTIES, OHIO

Prepared for:
FirstEnergy Corporation
341 White Pond Drive
Akron, OH 44320

Prepared by:
WSP USA
312 Elm Street, Suite 2500
Cincinnati, Ohio 45202

June 2019

TABLE OF CONTENTS

Acronyms and Abbreviations

ATSI	American Transmission Systems Inc.
CWA	Clean Water Act
ESC	Environmental Survey Corridor
ºF	Fahrenheit
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FirstEnergy	FirstEnergy Corporation
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
kV	Kilovolt
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
OBL	Obligate wetland
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
PHWH	Primary Headwater Habitat
Project	Holloway-Nottingham #1 138 kV Transmission Line Rebuild Project
PSS	Palustrine scrub-shrub
QHEI	Qualitative Habitat Evaluation Index
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
WoUS	Waters of the United States

1.0 INTRODUCTION

On behalf of FirstEnergy (FE), WSP Company (WSP)[1] conducted a wetland delineation of the proposed Lemoyne-Woodville #2-Fosteria 138 kV Transmission Line Rebuild and Woodville Substation Expansion Project (Project) located in Troy Township, Wood County, Ohio and Woodville Township, Sandusky County, Ohio. The wetland delineation was performed by individuals trained in the three-parameter methodology (hydrophytic vegetation, wetland hydrology, and hydric soils) adopted by the U.S. Army Corps of Engineers (USACE) as outlined in the U.S. Army Corps of Engineers' *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and Northcentral Region* (Environmental Laboratory, 2012) and in the U.S. Army Corps of Engineers' Wetland Delineation Manual (Environmental Laboratory, 1987).

2.0 BACKGROUND INFORMATION

2.1 Project Area

The Project is located within Wood and Sandusky Counties, Ohio. The Environmental Survey Corridor (ESC) begins at Woodville #2 Substation, south of Middleton Pike (Route 528) (41°26'56.75"N/83°23'4.06"W) and continues in a westerly direction, terminating at structure 30 (LWF-1), north of Middleton Pike (Route 528) (41°27'0.08"N/83°26'38.09"W) as shown in Figure 1. The ESC is within one USGS 7.5-minute topographic map; Pemberville, Ohio. The ESC is approximately 3.2-miles long, is 60 feet wide within the Project ROW, and contains and the approximately 1-acre Woodville Substation expansion area.

Topographic relief within the Project area is limited to relatively gradual elevation changes, with elevations ranging between 640 feet and 660 feet above sea level throughout the ESC (Figure 1).

Land use and natural communities observed within the ESC includes agricultural land, immature forested woodlots, existing roadway, substation, and residential, in addition to the identified streams.

2.1.1 Annual Precipitation

Recent rainfall data for Wood and Sandusky, Ohio was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. Toledo Express Airport, Ohio was the nearest weather station with both historical and recent precipitation records. Rainfall recorded in Belmont, Ohio was below normal for all months of 2019 through January through June which indicated records below normal (Table 2-1). This data suggests climatic conditions were generally drier than normal for 2019 leading up to the ecological survey. This was taken into consideration during the delineation.

[1] As of May 1, 2019. Louis Berger was retained by WSP Company.

TABLE 2-1: Recent Precipitation Data
Lemoyne – Woodville #2 – Fosteria 138 kV Transmission Line Rebuild and Expansion of Woodville #2 Substation Project

2019 Precipitation Data	Jan	Feb	Mar	Apr	May	June[4]	Total
Monthly Sum [1, 3]	1.72	2.65	3.53	4.83	4.66	4.03	21.42
Normal Precipitation. [2, 3]	3.0	2.6	4.0	3.9	4.2	4.2	21.9
Monthly climatic condition	Below Normal	Above Normal	Below Normal	Above Normal	Above Normal	Below Normal	Below Normal

[1]Monthly weather summary from weather station Toledo Express Airport, 2019, Woodville, OH (Weatherunderground, 2019)
[2] Hydrologic Atlas for Ohio, Water Inventory Report No. 28, 1991, Division of Water, ODNR (ODNR, 2002)
[3]Displayed in inches
[4]Through June 14, 2019

2.1.2 Drainage Basins

The ESC is within the Cedar-Portage (04100010), 8-digit Hydrologic Unit Codes (HUC). The ESC crosses two 12 digit HUCs, as outlined in Table 2-2 (USGS, 2018):

TABLE 2-2: 12-Digit HUCs Crossed by the Project
Lemoyne – Woodville #2 – Fosteria 138 kV Transmission Line Rebuild and Expansion of Woodville #2 Substation Project

HUC 12-Digit Code	HUC 12-Digit Name
04100010-04-02	Lacarpe Creek-Portage River
04100010-06-01	Upper Toussaint Creek

Source: USGS 2018

2.1.3 Traditional Navigable Waters

The U.S. Environmental Protection Agency (EPA) 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). These waters are considered traditionally navigable waters (TNW). Toussaint Creek within the ESC is considered a TNW (ODNR, 2019). All of the streams (See Section 4.1 for more detail) within the ESC drain into TNWs mentioned above.

3.0 METHODOLOGY

The purpose of the field survey was to determine whether wetlands and streams are present within the ESC that would meet the definition of Waters of the United States (WoUS) or be subject to regulations implemented by the Ohio Environmental Protection Agency (OEPA), and to document their extents and current conditions if present. Prior to conducting field surveys, WSP staff completed a desktop review by analyzing several federal and state documents for the presence of wetland and streams. This review included Natural Resources Conservation Service (NRCS) soil survey data, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps of Ohio, U.S. Geological Survey (USGS) 7.5-minute topographic maps, and USGS National

Hydrography Dataset (NHD) stream and river data as an exercise to identify the occurrence and location of potential wetlands and streams.

On June 25, 2019 a WSP wetland delineator traversed the ESC to conduct a wetland and waters delineation. During field surveys, the physical boundaries of aquatic resources were recorded using a Trimble Global Positioning System (GPS) unit rated for sub-meter accuracy. The GPS data were then geo-corrected using GPS Pathfinder Office software (version 5.60) and reviewed for quality control.

3.1 Desktop Review

The USACE and the U.S. Environmental Protection Agency (USEPA) define wetlands as areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR, Part 328.3). Identification and delineation of jurisdictional wetlands is based on the presence of the following three parameters:

1. Wetland hydrology – the area is inundated permanently or periodically, or the soil is saturated to the surface for sufficient duration during the growing season to support hydrophytic vegetation.
2. Hydrophytic vegetation – the dominant vegetation consists of species capable of growing in water or on substrate that is at least periodically deficient in oxygen as a result of the presence of water.
3. Hydric soils – soils that are saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth of hydrophytic vegetation.

The survey area was evaluated according to the procedures outlined in the USACE *1987 Wetland Delineation Manual* (*'87 Manual*) (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and Northcentral Region, Version 2.0* (*Regional Supplement*) (USACE, 2012). The *Regional Supplement* was released by the USACE to improve the accuracy and efficiency of wetland delineation procedures by addressing regional wetland characteristics and was finalized in 2012.

WSP performed the routine delineation method described in the *'87 Manual* and *Regional Supplement* that consisted of a desktop data review followed by a pedestrian site reconnaissance that included identification of vegetative communities, soils profile descriptions, recording geomorphological descriptions, and observations of hydrology. Evidence of mechanical alterations or disturbance having the potential to affect the wetland determination were also noted if present. The methodology used to examine each parameter is described in the following sections.

3.1.1 Hydrology

During field surveys, WSP scientists assessed potential wetland areas for indicators of wetland hydrology described in the *'87 Manual* and *Regional Supplement.* Observation of at least one

primary indicator or at least two secondary indicators was sufficient to positively say wetland hydrology was present.

The *'87 Manual* requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season (areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands). The *Regional Supplement* states that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-inch depth) is 41 degrees Fahrenheit (°F) or higher as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The *Regional Supplement* also states that if on-site data gathering is not practical, the growing season can be approximated by the number of days between the average (five years out of ten, or 50 percent probability) date of the last and first 28°F air temperature in the spring and fall, respectively. National Weather Service Agricultural Applied Climate Information System (AgACIS) WETS (wetlands determination) growing season data for Wood County indicates that in an average year, there are approximately 193 days without a killing frost. Five percent of the growing season is calculated to approximately 9.65 days. The growing season data for Sandusky County indicates that in an average year, there are approximately 201 days without a killing frost. Five percent of the growing season is calculated to approximately 10.05 days.

2.1.2 Vegetation

To determine the presence of hydrophytic vegetation, dominant vegetation was visually assessed for each stratum (tree, sapling and shrub, herb, and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL) was assigned to each plant species based on the *2016 National List of Plant Species* (USACE. 2018)[2]. The hydrophytic vegetation indicators are applied in the sequence presented in the *Regional Supplement*, where the vegetation is determined to be hydrophytic after the first indicator in the sequence is met and no further vegetation analysis is required. In the majority of wetland determinations, the presence of hydrophytic vegetation is determined by applying the rapid test for hydrophytic vegetation (indictor 1) or the dominance test (indicator 2). Indicator 1 is met when all dominant species across all strata are OBL and/or FACW. Where the rapid test is not

[2] OBL: A plant that almost always occurs in wetlands, but rarely in uplands;
FACW: A plant that usually occurs in wetlands, but occasionally occurs in uplands;
FAC: A plant that commonly occurs in both wetland and uplands;
FACU: A plant that usually occurs in uplands, but occasionally occurs in wetlands; and
UPL: A plant that almost always occurs in uplands, but rarely occurs in wetlands.

met, the dominance test is satisfied when more than 50 percent of the composition of the dominant species are rated OBL, FACW and/or FAC.

Indicators 1 and 2 are the first indicators that need to be considered, however some wetland plant communities may fail a test based only on dominant species. If the plant community fails the dominance test, but indicators of hydric soil and wetland hydrology are both present, WSP scientists use the prevalence index (indicator 3), or observations of plant morphological adaptations for life in wetlands (indicator 4), to determine if an area has hydrophytic vegetation. Vegetation of an area was determined to be non-hydrophytic when none of the indicators for hydrophytic vegetation were satisfied.

2.1.3 Soils

The National Technical Committee for Hydric Soils defines hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

Prior to beginning field work, NRCS soil survey data were reviewed for soil mapping units and soil series listed as hydric soils or containing hydric components. A table of the NRCS soil mapping units in the survey area is located in Section 3.1.1. To the extent possible, soils were observed to a depth of 20 inches below the soil surface; in instances where refusal was encountered before 20 inches, this was noted on field data sheets. Soils were examined in the field for hydric soil characteristics according to the guidelines in the *Regional Supplement Northcentral and Northeast*. A *Munsell Soil Color Chart* was used to identify the hue, value, and chroma of the soil matrix and redoximorphic features that may be present (Munsell Color Company, 2009).

2.2 Wetland Classification

Wetlands, streams, and other waters were classified according to the *Classification of Wetlands and Deepwater Habitats of the United States*, commonly referred to as the Cowardin Classification System (Cowardin et al., 1979). The waters identified within the survey area were classified as palustrine systems.

2.2.1 Palustrine System

Palustrine systems include non-tidal wetlands dominated by trees, shrubs, persistent emergents, mosses or lichens, and tidal wetlands where ocean-derived salinities are below 0.5 ppt (parts per thousand). This category also includes wetlands lacking such vegetation but with all of the following characteristics:

1. Less than 8 hectares (19.77 acres) in area.
2. Lacking an active wave-formed or bedrock boundary.
3. Water depth in the deepest part of the basin less than 2 meters (6.6 feet) at low water.

4. Ocean-derived salinities less than 0.5 ppt.

Palustrine systems are further classified by their dominant vegetation communities. In Pennsylvania the most common palustrine wetland systems are forested wetlands (approximately 45% of all palustrine wetlands), followed by open water (16%), emergent wetlands (13%), deciduous and evergreen scrub-shrub wetlands (13%), and mixed deciduous scrub-shrub and emergent wetlands (6%) (Fretwell et al. 1996). Commonly encountered subsystems in the northcentral and northeast region include:

- **Forested Wetland (PFO)** – The forested wetland class is characterized by woody vegetation that at least 3 inches diameter at breast height (DBH) or more and 6 meters (20 feet) tall or taller. All water regimes are included except subtidal.
- **Scrub-Shrub Wetland (PSS)** – The scrub-shrub wetland class includes areas dominated by woody vegetation less than 3 inches DBH and less than 6 meters (20 feet) tall. The plant types include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. All water regimes are included except subtidal.
- **Emergent Wetland (PEM)** – The emergent wetland class is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. The vegetation is usually dominated by perennial plants and is present for most of the growing season in most years. All water regimes are included except subtidal and irregularly exposed.
- **Unconsolidated Bottom (PUB)** – The unconsolidated bottom class typically refers to ponds, and are characterized by the lack of large stable surfaces for plant and animal attachment. PUB includes wetland and deepwater habitats with at least 25% cover of particles smaller than stones, and a vegetative cover less than 30%. They are usually found in areas with lower energy than rock bottoms and may be very unstable. Exposure to wave and current action, temperature, salinity, and light penetration determines the composition and distribution of organisms. Water regimes are restricted to subtidal, permanently flooded, intermittently exposed, and semipermanently flooded.

2.3 Ohio Rapid Assessment Method v.5.0

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

Category 1 Wetlands

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

Category 2 Wetlands

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

Category 3 Wetlands

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

2.4 Stream And River Crossings

The Clean Water Act provides authority for states to issue water quality standards and designated uses to authorize certain activities in waters of the U.S. upstream to the highest reaches of the tributary streams. In addition, the Federal Water Pollution Control Act of 1972 and its 1977 and 1987 amendments require knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and evidence of an ordinary high water mark (OHWM). The USACE defines OHWM as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and

debris, or other appropriate means that consider the characteristics of the surrounding areas" (USACE, 2005).

Stream assessments were conducted using the methods described in the OEPA's Methods for Assessing Habitat in Flowing Waters: Using OEPA's *Qualitative Habitat Evaluation Index* (Rankin, 2006) and *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, Version 3* (Davic, 2012).

1.1.1 OEPA QUALITATIVE HABITAT EVALUATION INDEX

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

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

1.1.2 OEPA PRIMARY HEADWATER HABITAT EVALUATION INDEX

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

less than or equal to 1.0 mi^2 (259 ha), *and* a maximum depth of water pools equal to or less than 15.75 inches (40 cm)" (Davic, 2012).

The HHEI method is used to discern the actual and expected biological conditions in primary headwater streams. The statewide sampling effort by the OEPA revealed there are three general types of PHW streams based upon the biological communities present. The three general PHW stream types are:

Ephemeral Aquatic Streams: Ephemeral aquatic streams have limited or no aquatic life potential, expect seasonally when flowing water is present for short time periods following precipitation or snow melt.

Small Drainage Warm Water Streams: Small drainage warm water streams are normally intermittent, but some may have perennial flow derived from shallow groundwater in which case the ambient stream temperature remains relatively warm during summer and fluctuates a greater degree seasonally. These types of streams may exhibit moderately diverse communities of warm water adapted native fauna present either seasonally or year-round. Native fauna is characterized by species of vertebrates or benthic macroinvertebrates.

Spring Water Streams: For spring water streams the prevailing flow and temperature conditions of these streams are influenced by groundwater. They exhibit moderately diverse to highly diverse communities of cold water adapted native fauna present year-round.

3.0 RESULTS

The results presented in this report reflect the existing and reasonably foreseeable site conditions at the time of our survey. The results cannot apply to site changes occurring after the survey to which WSP has not had the opportunity to review. During the course of any survey, site conditions may change over time due to human and/or natural causes; as such, the results presented in this report may be invalidated, either wholly or in part, by changes beyond the control of WSP.

A WSP ecologist surveyed the Project on June 25, 2019, by walking the corridor and evaluating for wetlands and other WoUS. Only two streams were delineated within the ESC. The features identified within the ESC are depicted on the Wetland Delineation Map (Figure 3-A to Figure 3F-BK).

3.1 Wetlands

Results of the desktop review and details of the wetlands delineated within the survey area are provided in the following sections. Completed USACE wetland determination data forms associated with each wetland and paired upland sample point are provided in Appendix A. The approximate location and extents of the wetlands delineated in this survey are depicted in Figures 3A-3F. Color photographs were taken of the wetlands delineated during the field survey are provided in Appendix E.

3.1.1 Soils Evaluation

According to the NRCS Soil Data for Wood and Sandusky Counties, Ohio, there are five soil map units shown within the survey area, presented in Table 1. Three of the five soils map units are listed as Predominately Non-Hydric (1-32%) and two are listed as Predominately Hydric (66-99%) according to the NRCS National Soil Information System for Ohio. Water features typically represent excavated ponds in the soil survey data and are not rated for hydric soil criteria. The soils observed by WSP staff during the site reconnaissance were consistent with the NRCS soil survey mapping.

3.1.2 National Wetland Inventory Map Review

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

According to the NWI maps of the Pemberville, Ohio quadrangle, the survey corridor contains two mapped NWI wetlands: one riverine lower perennial unconsolidated bottom, permanently flooded and one riverine intermittent streambed, seasonally flooded. (USFWS, 2016). Portions of the NWI wetlands were mapped in the locations of delineated Streams 1 and 2. Locations of the NWI mapped wetlands are shown on Figures 2A through 2F.

3.1.3 Delineated Wetlands

There were no delineated wetlands identified within the ESC.

3.2 Streams and Rivers

A total of two streams, totaling 154 linear feet, were identified within the ESC as shown in Figures 3A-3F. Of the two streams, Stream 1 was identified as ephemeral stream and Stream 2 was identified as perennial. Stream 1 was assessed using the HHEI methodology (drainage area less than 1 mi^2) and Stream 2 was assessed using the QHEI methodology (drainage area greater than 1 mi^2).

These streams appear to have significant nexus with a TNW and are therefore likely to be considered jurisdictional by the USACE. It is noted that the USACE will make the final determination of significant nexus with a TNW. Completed QHEI and HHEI forms are provided

in Appendix B and C, respectively. Representative photographs were taken of each stream during the field survey and are provided in Appendix D.

Table 2 provides the waterbody name, flow regime, stream length in the survey area, map tile, and photograph number associated with each delineated stream. Photographs of each of the delineated streams in the survey area are located in Appendix D. Locations of streams identified within the survey area are shown in Figure 3A-3F.

3.2.1 QHEI Stream Results

Stream 2, totaling 66 linear feet, within the ESC was evaluated using the QHEI methodology. The streams habitat assessed was Poor Warmwater stream. Detailed information for the delineated stream within the ESC is provided in Table 2 (follows text). Completed QHEI forms are included in Appendix B.

3.2.2 HHEI Stream Results

Stream 1, totaling 88 linear feet, within the ESC was evaluated using the HHEI methodology. The streams habitat was classified as a Modified Ephemeral Stream. Detailed information for the delineated stream within the ESC is provided in Table 2 (follows text). Completed HHEI forms are provided in Appendix C. Representative photographs of the streams were taken during the field survey and are provided in Appendix D.

3.3 Ponds/Open Water

There were no ponds found within the ESC.

4.0 SUMMARY

WSP conducted a wetland delineation and stream assessment of the Lemoyne – Woodville #2 – Fosteria 138 kV Transmission Line Rebuild and Woodville #2 Substation Expansion Project on June 25, 2019. A total of two streams were delineated within the ESC of the transmission line, and no features were found within the proposed Woodville #2 Substation expansion area.

The two streams, totaling 154 linear feet, identified within the ESC include one ephemeral stream and one perennial stream. Of the two streams, Stream 1 had 88 linear feet within the ESC and was assessed using the HHEI methodology (drainage area less than 1 mi^2) and Stream 2 had 66 linear feet within the ESC and was assessed using the QHEI methodology (drainage area greater than 1 mi^2).

The results discussed in this report are confined to the survey limits described in earlier sections and depicted on Figures 3A-3F. Similarly, the data described is often for an area that is larger than the actual Project limits-of-disturbance for construction, therefore, lengths and acreages listed in the report are likely not representative of actual Project impacts. If it is determined that this Project

will impact Waters of the U.S., actual impacted lengths and acreages will be supplied in a permit application. Additionally, the results presented in this report should not be construed as a jurisdictional determination. If a jurisdictional determination is desired, one can be acquired through obtaining an approved Jurisdictional Determination (JD) or Preliminary Jurisdictional Determination (PJD) through the USACE.

Wetlands, excavated ponds, stream channels, and rivers are regulated by the USACE and OEPA. Any encroachments, fill material, or crossings of these areas will require permit authorization from the associated state and federal agencies. Should it be determined that the Project may impact potentially regulated waters, WSP can work to determine whether a JD or PJD is recommended, as well as support submittal for necessary permits.

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Tables

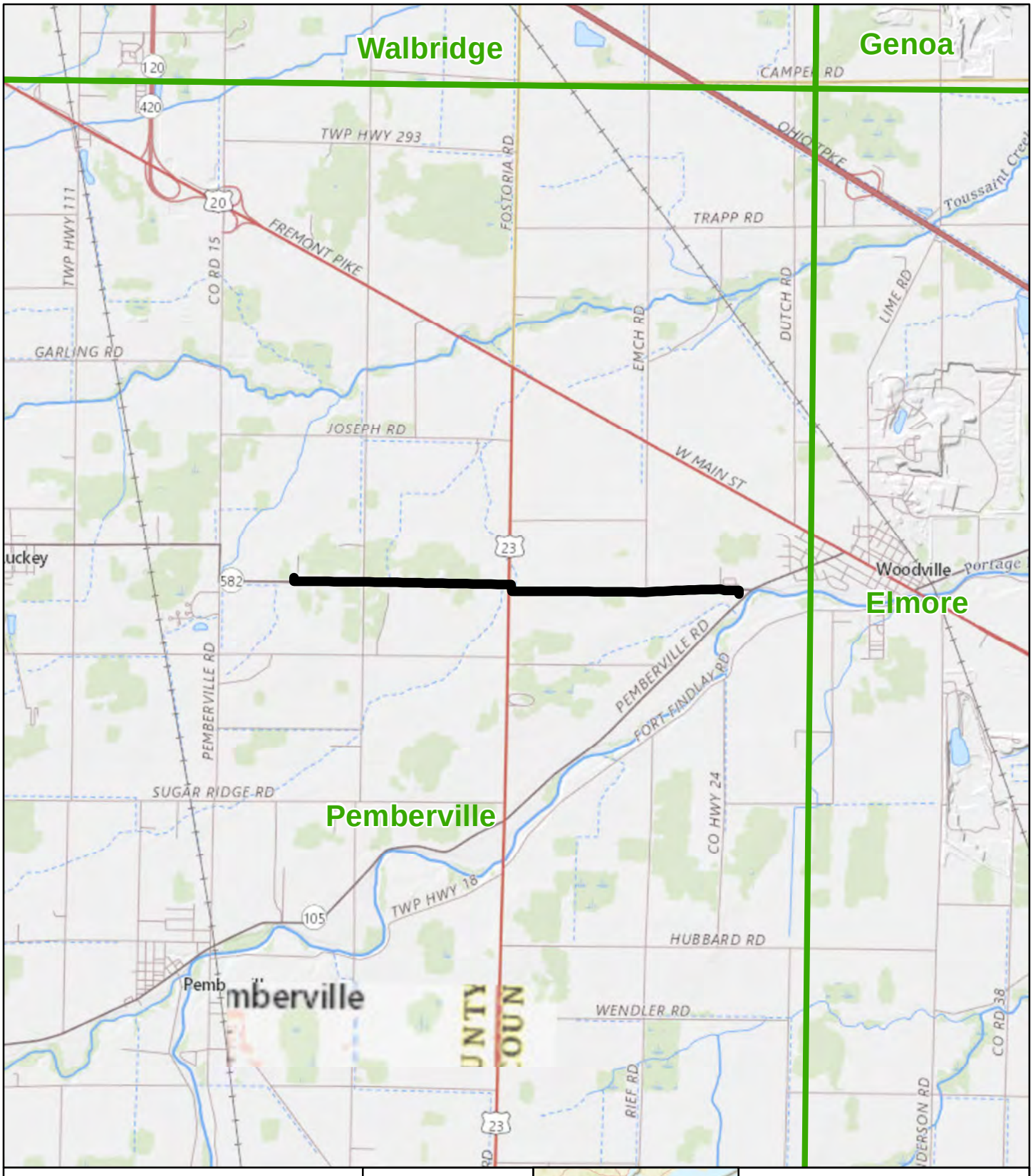
Table 1. NRCS Soil Map Units in the Survey Area			
Symbol	**Soil Map Unit Name and Description**	**Hydric Rating**	**Hydric %**
HaB	Haskins sandy loam, 1 to 4 percent slopes	Predominately Non-Hydric	5
HoA	Hoytville clay loam, 0 to 1 percent slopes	Predominately Hydric	90
Mo	Mermill loam	Predominately Hydric	96
NpA	Nappanee silt loam, 0 to 3 percent slopes	Predominately Non-Hydric	5
Sh	Shoals silt loam, frequently flooded	Predominately Non-Hydric	5

Notes: Not Hydric = 0% hydric soil component, Predominantly Not Hydric = 1-32%, Partially Hydric =33-65%, Predominantly Hydric = 66-99%, and All Hydric = 100%.

Table 2. Streams Delineated within the Survey Area								
Stream ID	**Waterbody**	**Latitude**	**Longitude**	**Linear Feet**	**Tile Map**	**QHEI Score**	**HHEI or QHEI Category**	**HHEI Score**
Stream 1	UNT Toussaint Creek	41°27'0.22"N	83°25'49.85"W	88	2	N/A	Modified Ephemeral Stream	16
Stream 2	Toussaint Creek	41°26'58.69"N	83°24'53.77"W	66	3	33.5	Poor Warmwater	N/A

Notes: UNT = unnamed tributary
Lengths are approximate based on GPS data and are rounded to the nearest foot.

Figures



Project Route

USGS 24k Quad Boundary

Sources:
Topo (USGS)

Coordinate System:
Ohio State Plane North
NAD 1983

June 26, 2019

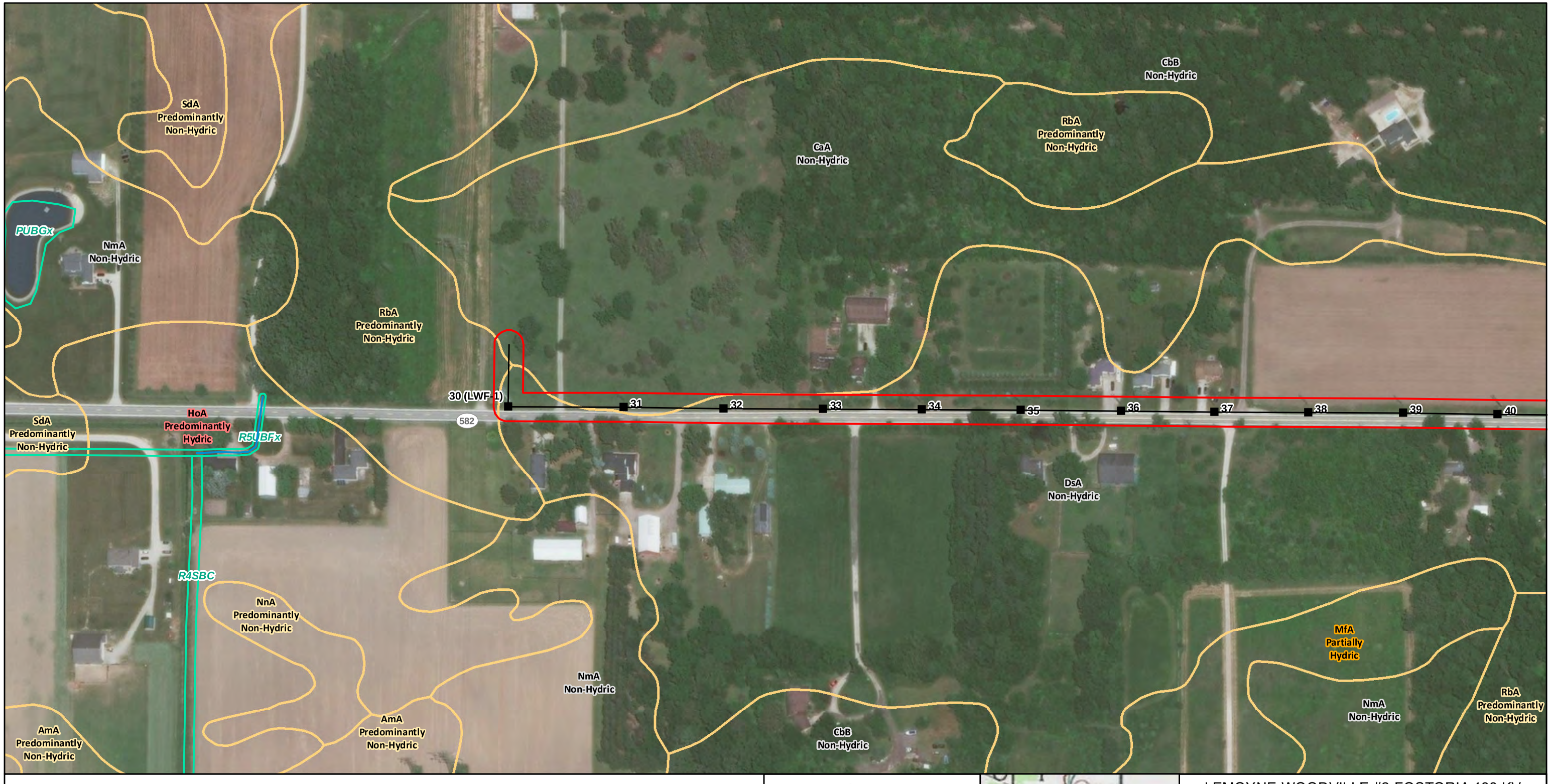
LEMOYNE-WOODVILLE #2-FOSTORIA
138 KV TRANSMISSION LINE
REBUILD PROJECT

Figure 1: Project Location Map

ToledoEdison

wsp

0 0.25 0.5 1 Miles

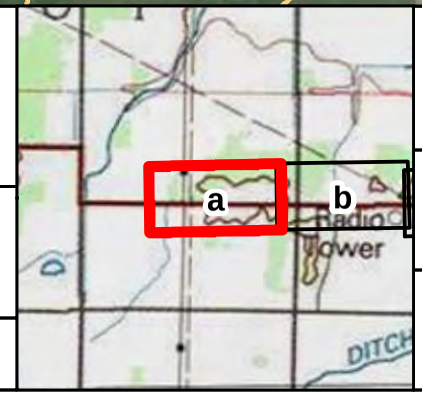


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

June 26, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

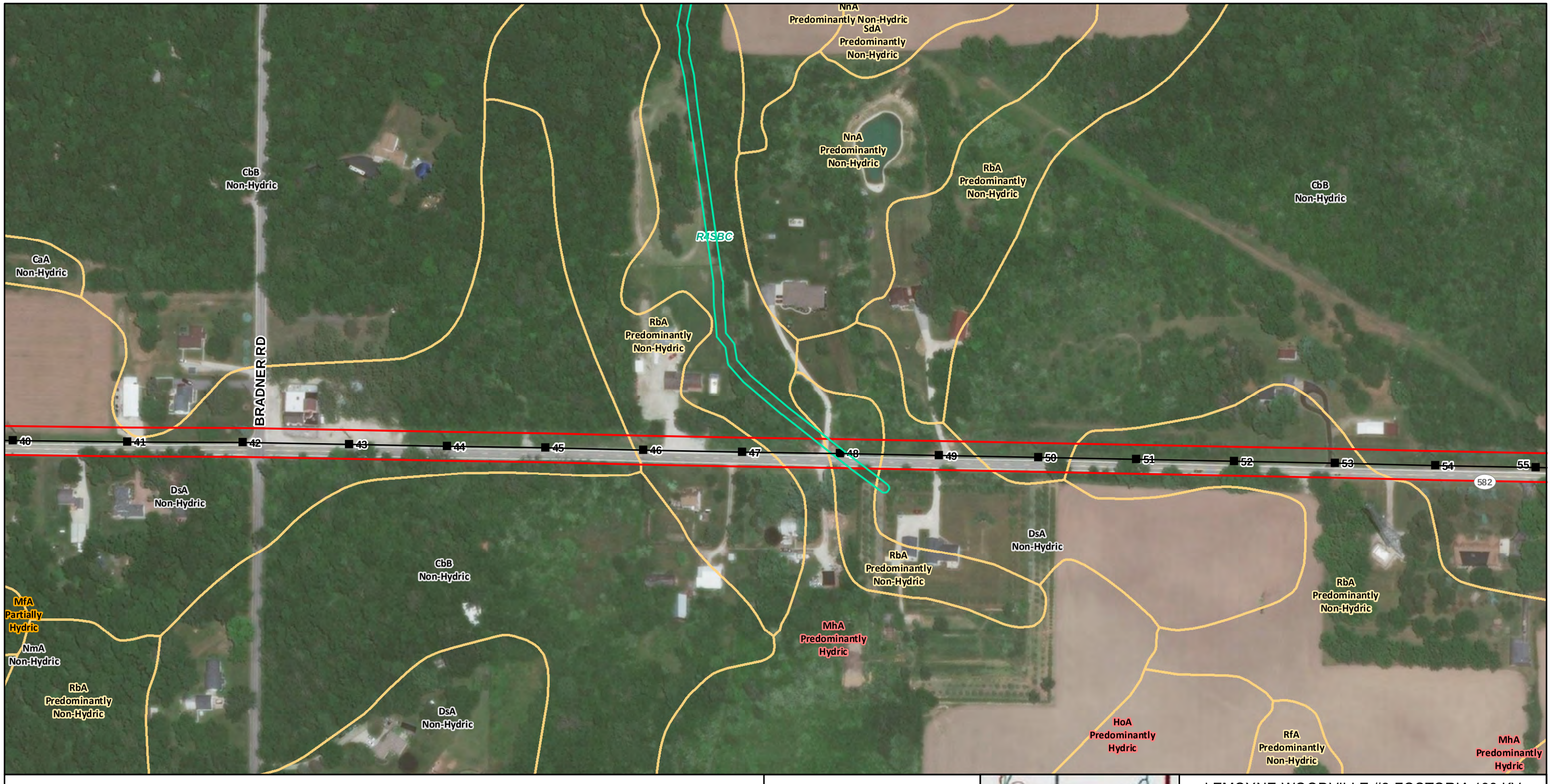
Figure 2a: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

N

0 100 200 400 Feet

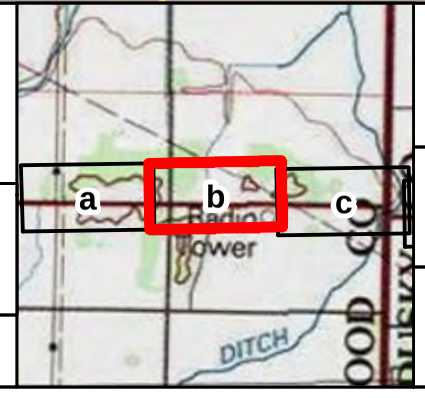


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

June 26, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 2b: Environmental Base Map

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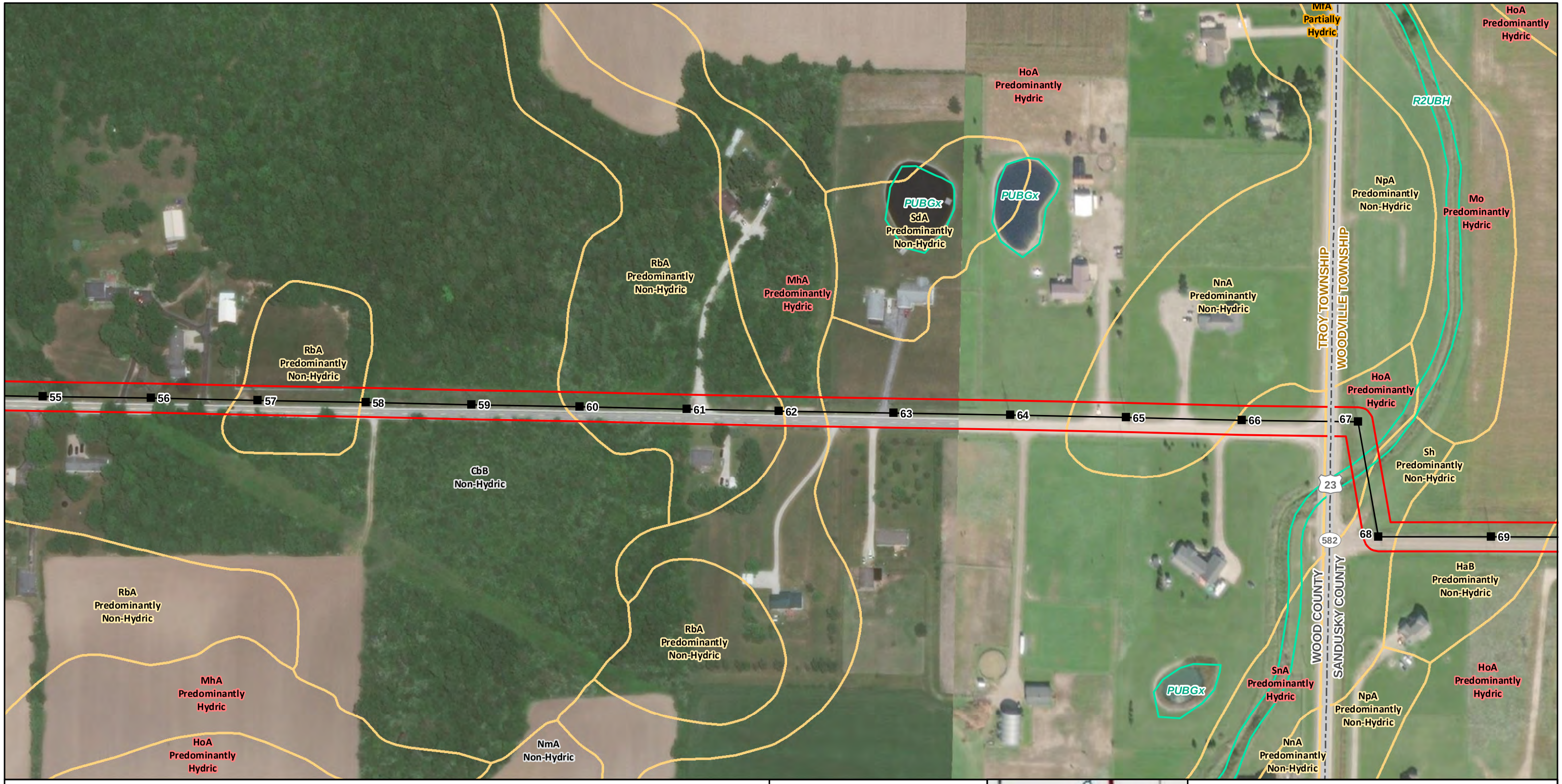
wsp

0 100 200 400 Feet

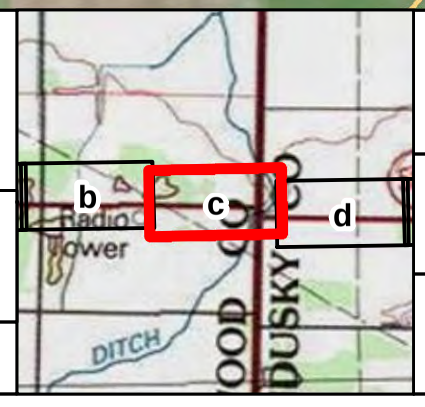


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

June 26, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 2c: Environmental Base Map

ToledoEdison
A FirstEnergy Company

wsp

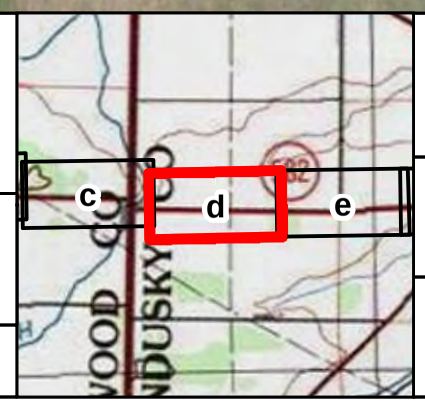
0 100 200 400 Feet

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

June 26, 2019



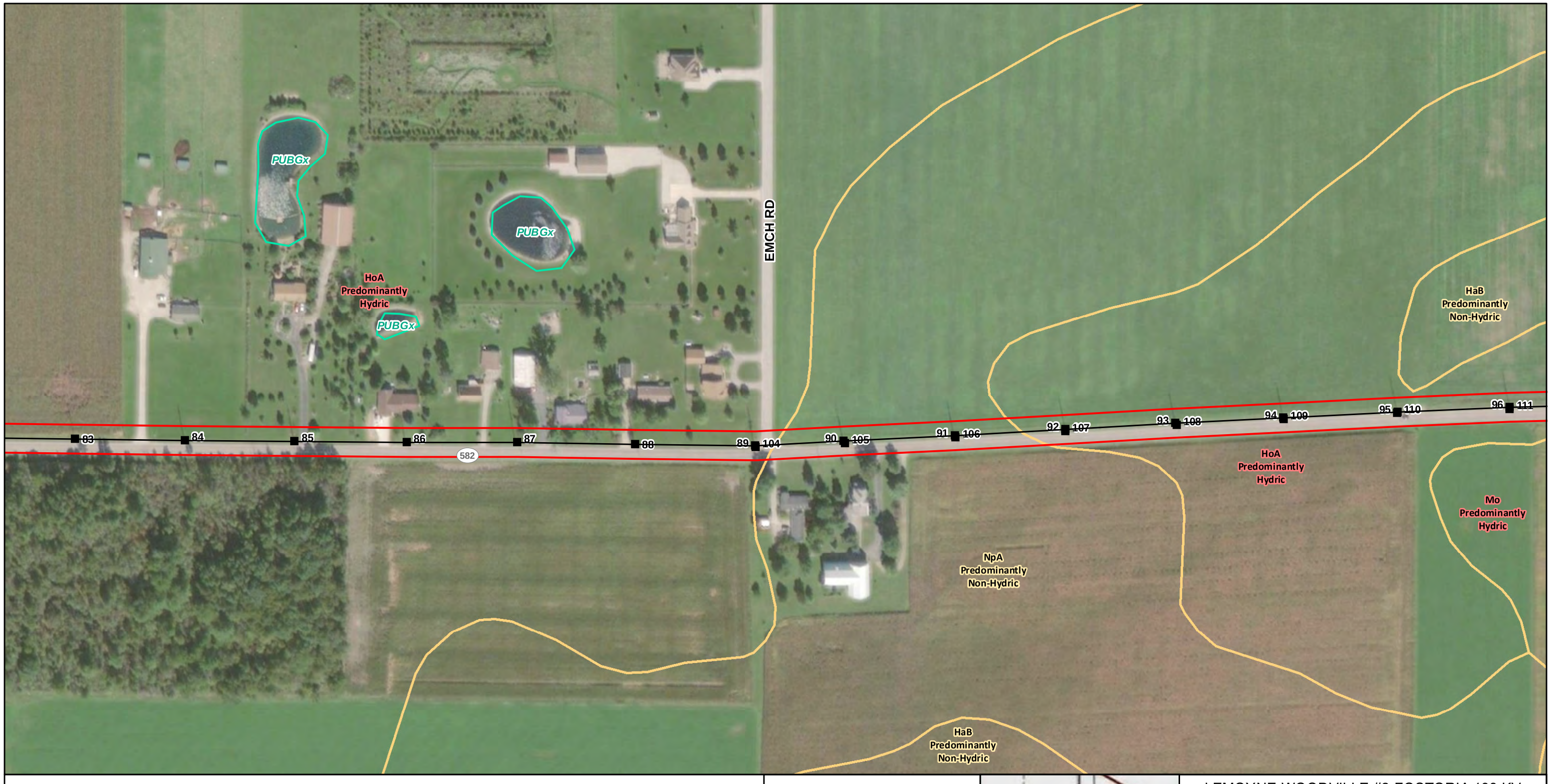
LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 2d: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 100 200 400 Feet

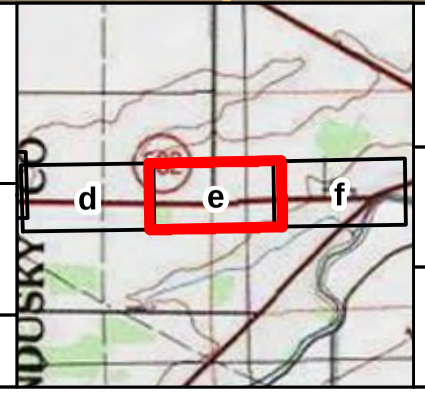


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

June 26, 2019



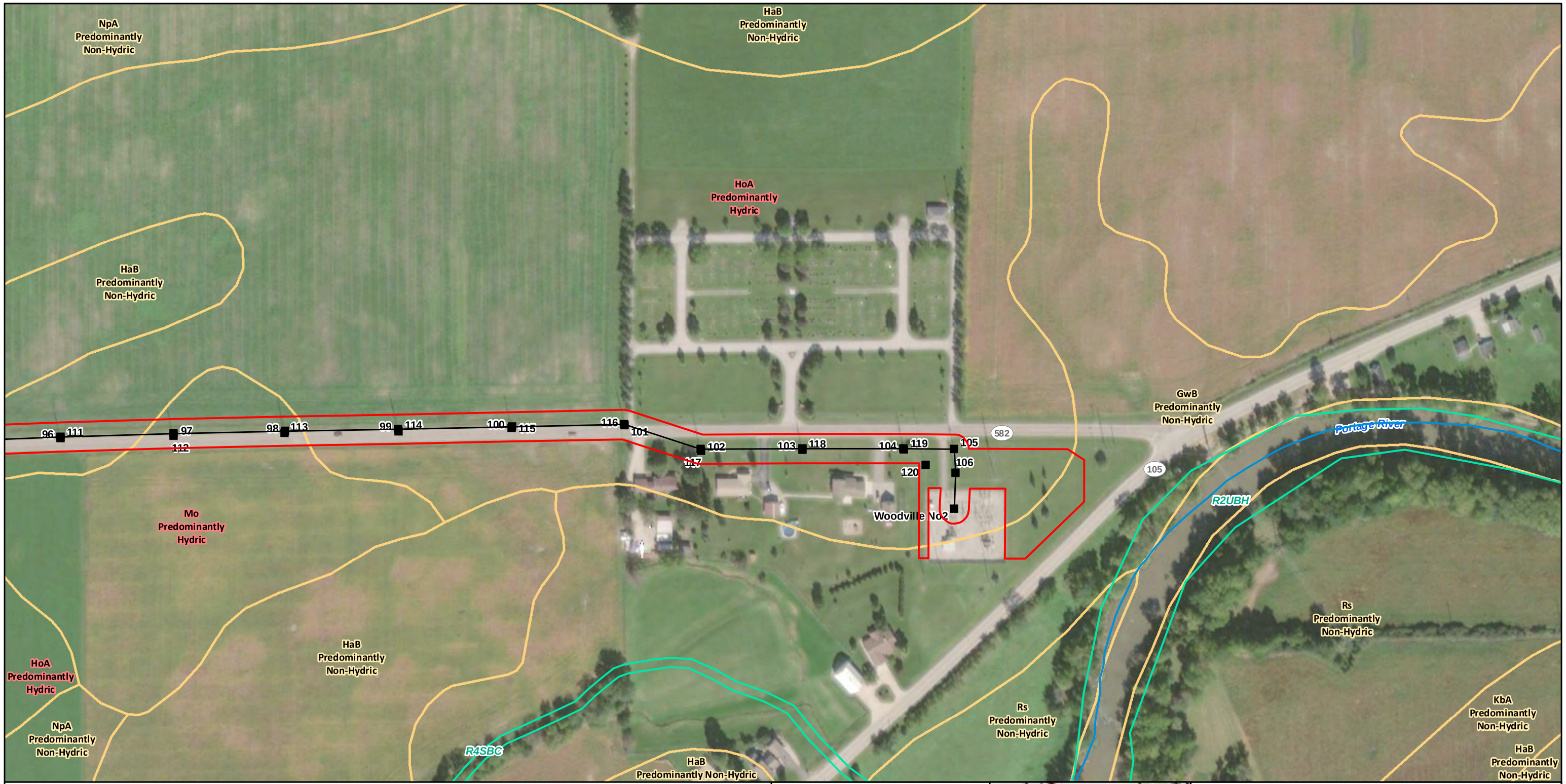
LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 2e: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

0 100 200 400 Feet

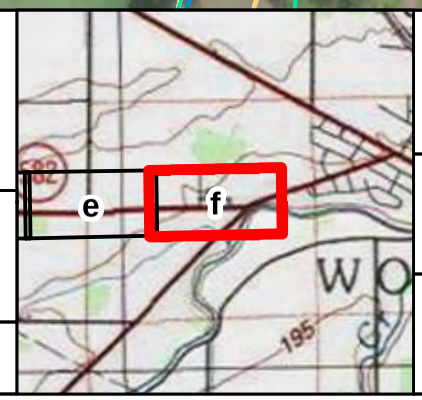


- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- NHD Stream
- NHD Waterbody
- NWI Wetland
- Soil Map Unit

Sources:
Imagery (ESRI)
NHD (USGS)
NWI (USFWS)
Soils (USDA-NRCS)

Coordinate System:
Ohio State Plane North
NAD 1983

June 26, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 2f: Environmental Base Map

ToledoEdison® A FirstEnergy Company

wsp

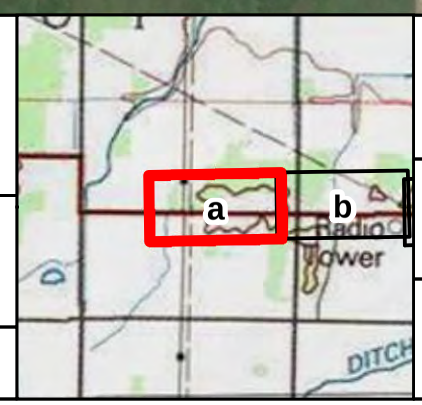
0 100 200 400 Feet

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Delineated Stream
- Upland Data Point

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

June 27, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 3a: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

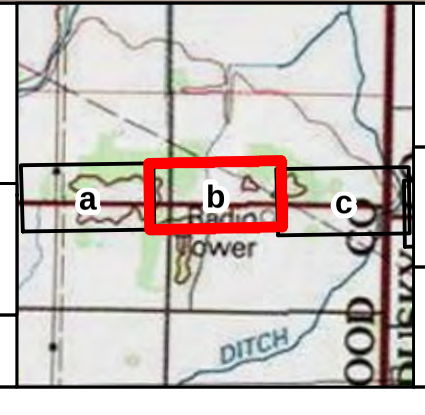
0 100 200 400 Feet

Substation
Structure
Project Route
Survey Area
County Boundary
Township Boundary
Delineated Stream
Upland Data Point

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

June 27, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 3b: Wetland Delineation Map

ToledoEdison
A FirstEnergy Company

wsp

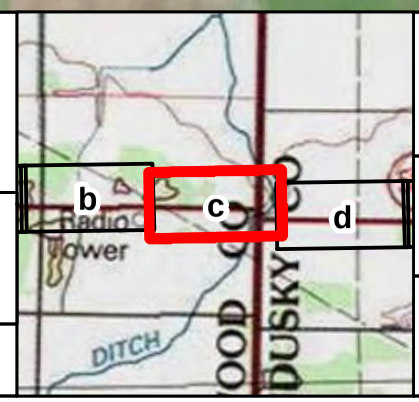
0 100 200 400 Feet

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Delineated Stream
- Upland Data Point

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

June 27, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 3c: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

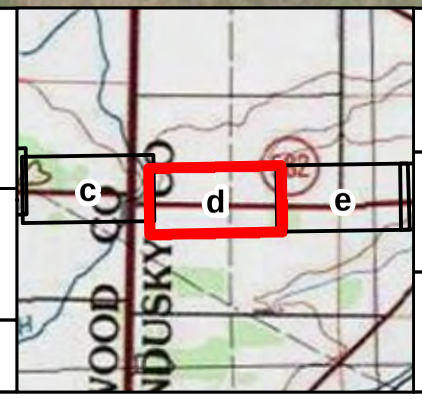
0 100 200 400 Feet

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Delineated Stream
- Upland Data Point

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

June 27, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 3d: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

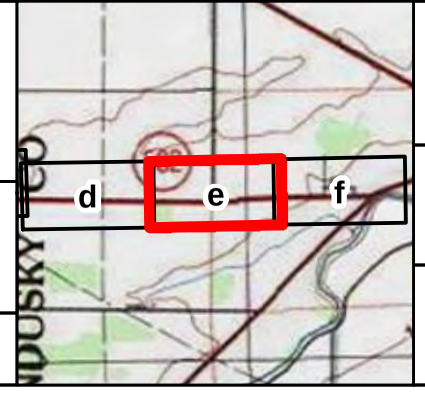
0 100 200 400 Feet

- Substation
- Structure
- Project Route
- Survey Area
- County Boundary
- Township Boundary
- Delineated Stream
- Upland Data Point

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

June 27, 2019



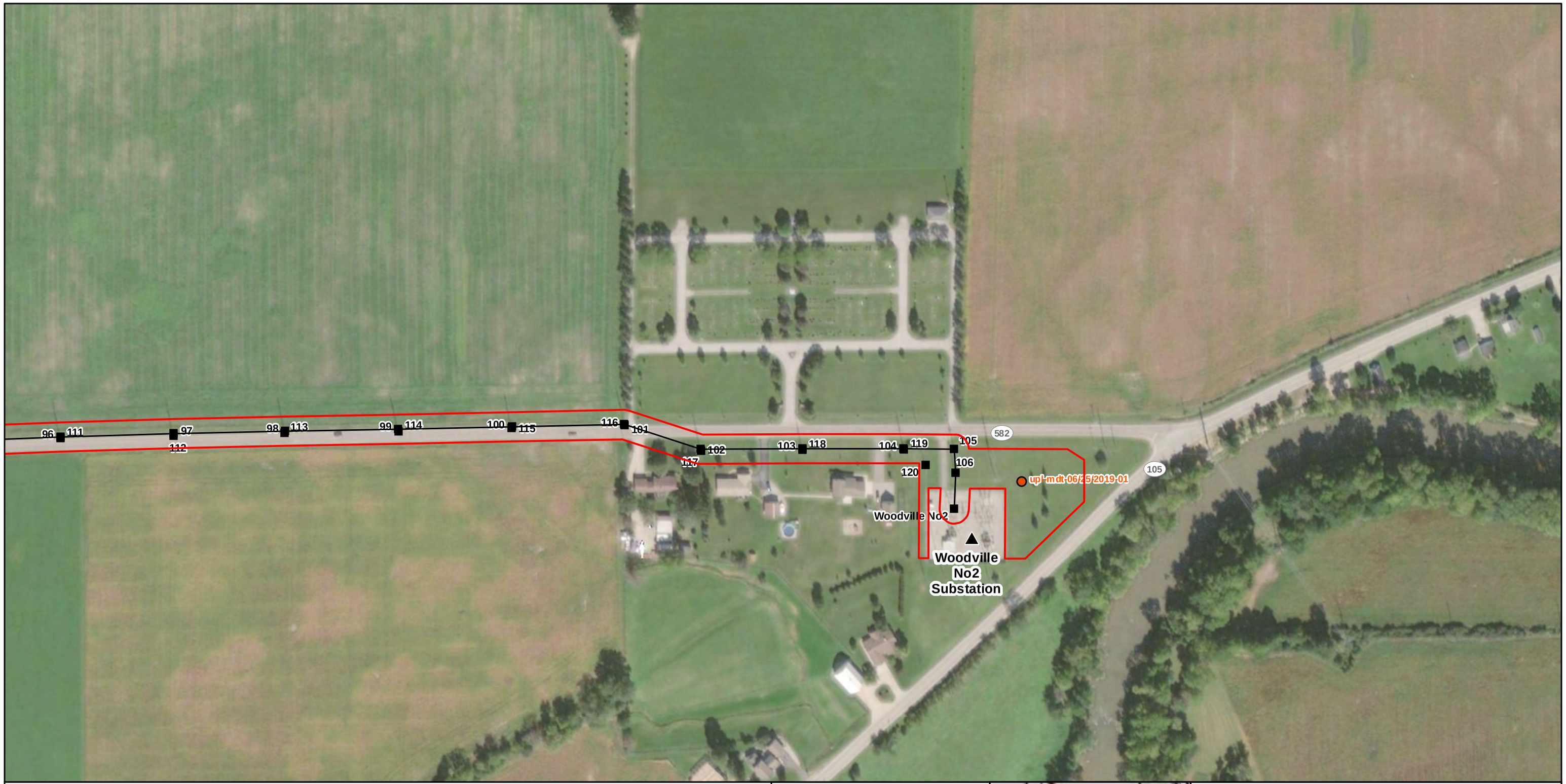
LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 3e: Wetland Delineation Map

ToledoEdison® A FirstEnergy Company

wsp

0 100 200 400 Feet

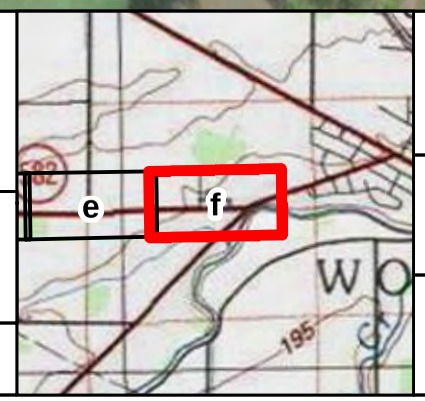


Substation
Structure
Project Route
Survey Area
County Boundary
Township Boundary
Delineated Stream
Upland Data Point

Sources:
Imagery (ESRI)

Coordinate System:
Ohio State Plane North
NAD 1983

June 27, 2019



LEMOYNE-WOODVILLE #2-FOSTORIA 138 KV
TRANSMISSION LINE REBUILD PROJECT

Figure 3f: Wetland Delineation Map

ToledoEdison
A FirstEnergy Company

wsp

0 100 200 400 Feet

Appendix A.

USACE Wetland Determination Field Datasheets

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Lemoyne-Woodville #2-Fostoria 138 kV Tline Rebuild City/County: Woodville/Sandusky Sampling Date: 20190628

Applicant/Owner: FirstEnergy State: OH Sampling Point:

Investigator(s): M.Thomayer; WSP Section, Township, Range:

Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope %:

Subregion (LRR or MLRA): LRR L, MLRA 99 Lat: Long: Datum:

Soil Map Unit Name: HoA; Hoytville clay loam, 0 to 1 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes X	No	**within a Wetland?** **Yes** **No X**
Wetland Hydrology Present?	Yes	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
Upland sample point (upl-mdt-06/25/2019-01) in maintained lawn outside of existing substation, but within the proposed expansion limits. While the soils were hydric, the hydrology and vegetation did not meet the necessary parameters.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	No X	Depth (inches):
Water Table Present?	Yes	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	No X	Depth (inches):

Wetland Hydrology Present? **Yes** **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators observed.

VEGETATION – Use scientific names of plants.

Sampling Point: upl-mdt-06/25/2019-01

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Poa annua*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** ___ **No** X

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

SOIL

Sampling Point: upl-mdt-06/25/2019-01

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ____

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Appendix B.

OEPA QHEI Datasheets

Field ID: s-mdt-06/25/2019-01 Report ID: Stream 2

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 33.5

Stream & Location: Lemoyne-Woodville-Fostoria 138 kV Tline Rebuild RM: _ _ _._ Date: 6 / 25 / 19

M.Thomayer; WSP Scorers Full Name & Affiliation: OEPA Category: Poor Warmwater Habitat Stream

River Code: _ _ _-_ _ _-_ _ _ STORET #: _ _ _ _ _ _ _ Lat./ Long.: (NAD 83 - decimal °) _ _ . _ _ _ _ _ /8_ . _ _ _ _ _ Office verified location ☐

1] SUBSTRATE

Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☒ ☐ HARDPAN [4]	10	75
☐ ☐ BOULDER [9]			☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]			☐ ☐ MUCK [2]	30	
☐ ☐ GRAVEL [7]	10	20	☐ ☒ SILT [2]	50	
☐ ☐ SAND [6]		5	☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☐ 4 or more [2] ☒ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☐ TILLS [1]
- ☐ WETLANDS [0]
- ☒ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

SILT / EMBEDDEDNESS

QUALITY
- ☐ HEAVY [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate: 4 (Maximum 20)

Comments

2] INSTREAM COVER

Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

1 UNDERCUT BANKS [1]	____ POOLS > 70cm [2]	____ OXBOWS, BACKWATERS [1]	
1 OVERHANGING VEGETATION [1]	____ ROOTWADS [1]	____ AQUATIC MACROPHYTES [1]	
____ SHALLOWS (IN SLOW WATER) [1]	____ BOULDERS [1]	____ LOGS OR WOODY DEBRIS [1]	
____ ROOTMATS [1]			

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☐ MODERATE 25-75% [7]
- ☒ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20: 5

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☐ LOW [2]
- ☒ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☒ RECOVERED [4]
- ☒ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☐ HIGH [3]
- ☒ MODERATE [2]
- ☐ LOW [1]

Comments

Channel Maximum 20: 7.5

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

EROSION

L	R	
☒	☒	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☒	☒	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY

L	R	
☐	☐	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☒	☒	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10: 5

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check **ONE** (*ONLY!*)
- ☐ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☒ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (*Or 2 & average*)
- ☒ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☒ MODERATE [1]
- ☐ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current Maximum 12: 4

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ☐ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☒ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☒ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☒ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☒ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run Maximum 8: 4

6] GRADIENT

(3.13 ft/mi)

DRAINAGE AREA

(5.4 mi²)

- ☒ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: 10 %GLIDE: 0 %RUN: 55 %RIFFLE: 35

Gradient Maximum 10: 4

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-		2nd
☐	HIGH	☐
☐	UP	☐
☒	NORMAL	☐
☐	LOW	☐
☐	DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

_____ meters

CLARITY

1st --sample pass--		2nd
☐	< 20 cm	☐
☐	20-<40 cm	☐
☐	40-70 cm	☐
☐	> 70 cm/ CTB	☐
☐	SECCHI DEPTH	☐

CANOPY

- ☒ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass _____ cm

2nd _____ cm

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☐ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☐ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES

WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

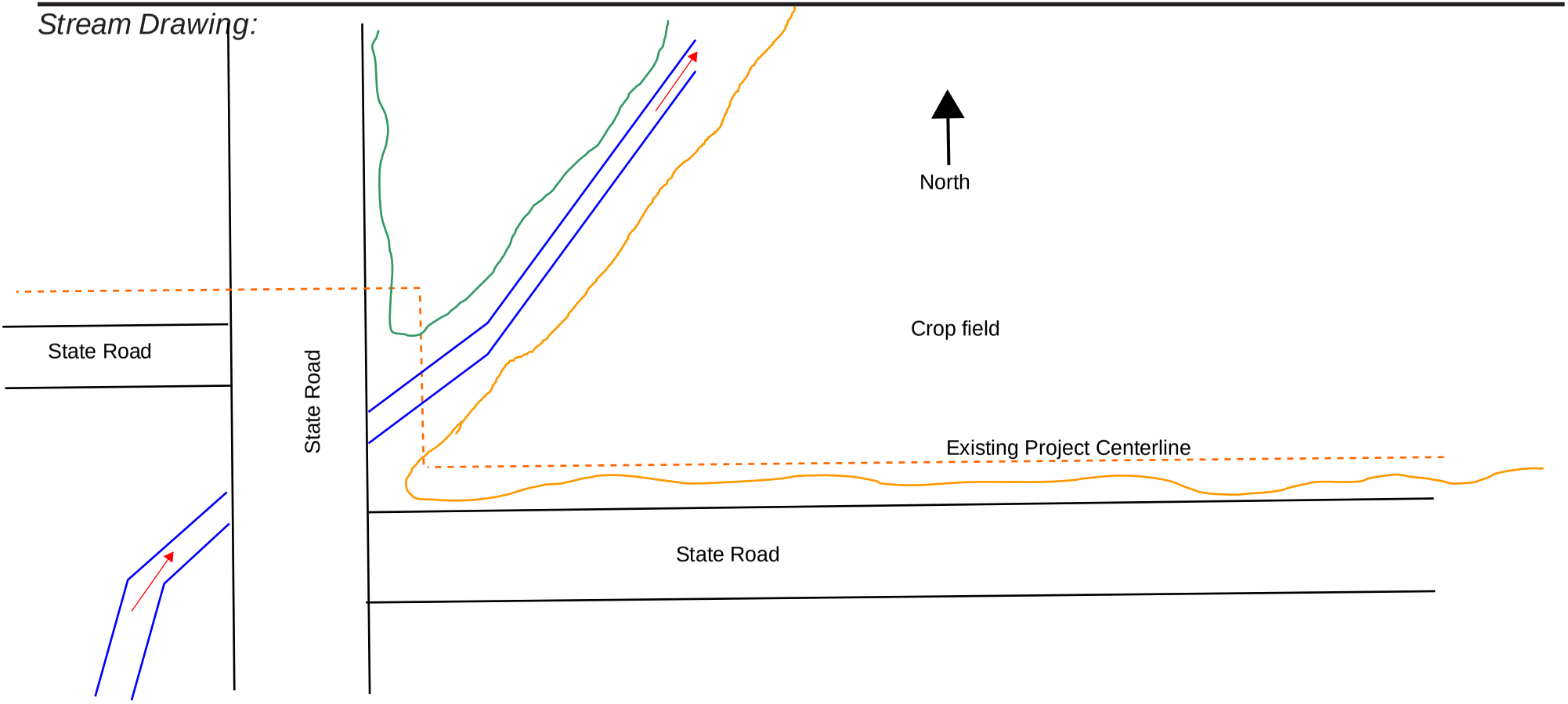
F] MEASUREMENTS

- $\bar{x}$ width
- $\bar{x}$ depth
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Stream Drawing:



Appendix C.

OEPA HHEI Datasheets

Field Methods for Evaluating Primary Headwater Streams in Ohio
Ohio EPA, Division of Surface Water

Version 4.0
October 2018

PHW Stream Type: Modified Ephemeral Stream

Primary Headwater Habitat Field Evaluation Form

HHEI Score (sum of metrics 1+2+3) 16

SITE NAME/LOCATION: Lemoyne-Woodville-Fostoria 138 kV Tline Rebuild

SITE NUMBER _____ RIVER BASIN _____ RIVER CODE _____ DRAINAGE AREA (mi²) _____

LENGTH OF STREAM REACH (ft) _____ LAT _____ LONG _____ RIVER MILE _____

DATE 20190625 SCORER M.Thomayer COMMENTS Channelized ephemeral stream originating at road and flowing thru ROW.

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

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

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

TYPE		PERCENT	TYPE		PERCENT
☐	BLDR SLABS [16 pts]		☒	SILT [3 pt]	60
☐	BOULDER (>256 mm) [16 pts]		☐	LEAF PACK/WOODY DEBRIS [3 pts]	
☐	BEDROCK [16 pts]		☐	FINE DETRITUS [3 pts]	
☐	COBBLE (65-256 mm) [12 pts]		☐	CLAY or HARDPAN [0 pt]	
☐	GRAVEL (2-64 mm) [9 pts]		☒	MUCK [0 pts]	25
☐	SAND (<2 mm) [6 pts]		☐	ARTIFICIAL [3 pts]	15

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock: 0 (A)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3

TOTAL NUMBER OF SUBSTRATE TYPES: 3 (B)

HHEI Metric Points

Substrate Max = 40: 6

A + B

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

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

COMMENTS _____ MAXIMUM POOL DEPTH (inches): 1

Pool Depth Max = 30: 5

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

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

COMMENTS _____ AVERAGE BANKFULL WIDTH (feet): 2

Bankfull Width Max=30: 5

This information must also be completed

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

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

COMMENTS _____

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

- ☒ Stream Flowing
- ☐ Subsurface flow with isolated pools (interstitial)
- ☐ Moist Channel, isolated pools, no flow (intermittent)
- ☐ Dry channel, no water (ephemeral)

COMMENTS Ephemeral stream; flowing from recent rains.

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? ☐ Yes ☒ No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

☐ WWH Name: _____ Distance from Evaluated Stream _____

☐ CWH Name: _____ Distance from Evaluated Stream _____

☐ EWH Name: _____ Distance from Evaluated Stream _____

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

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

County: Wood Township/City: _____

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 6/23/2019 Quantity: Unknown

Photo-documentation Notes: _____

Elevated Turbidity? (Y/N): N Canopy (% open): 100% in ROW

Were samples collected for water chemistry? (Y/N): N Lab Sample # or ID (attach results): _____

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

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

Additional comments/description of pollution impacts: _____

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) N Species observed (if known): _____

Frogs or Tadpoles Observed? (Y/N) N Species observed (if known): _____

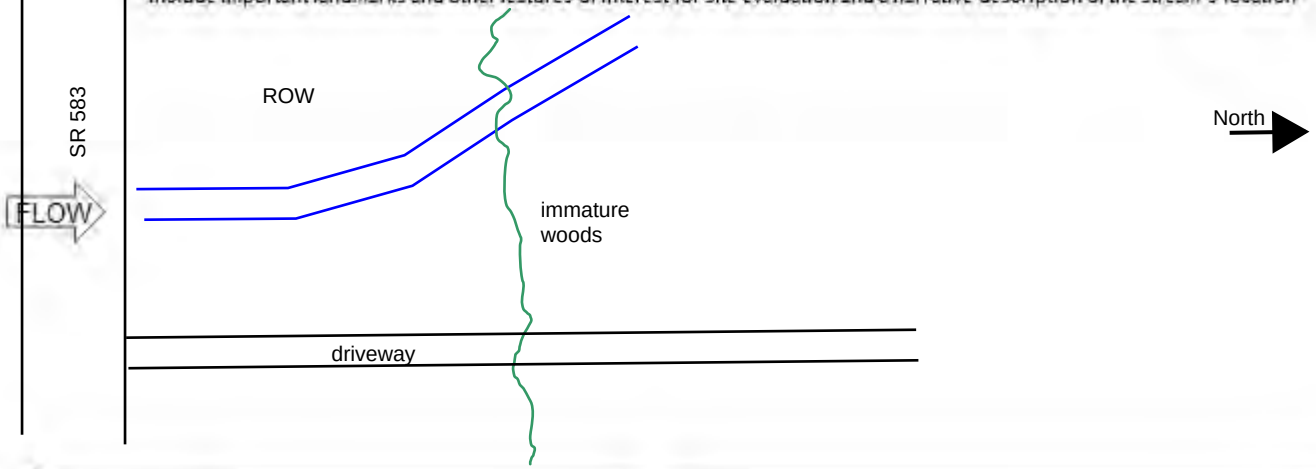
Salamanders Observed? (Y/N) N Species observed (if known): _____

Aquatic Macroinvertebrates Observed? (Y/N) N Species observed (if known): _____

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



Appendix D.

Representative Photographs

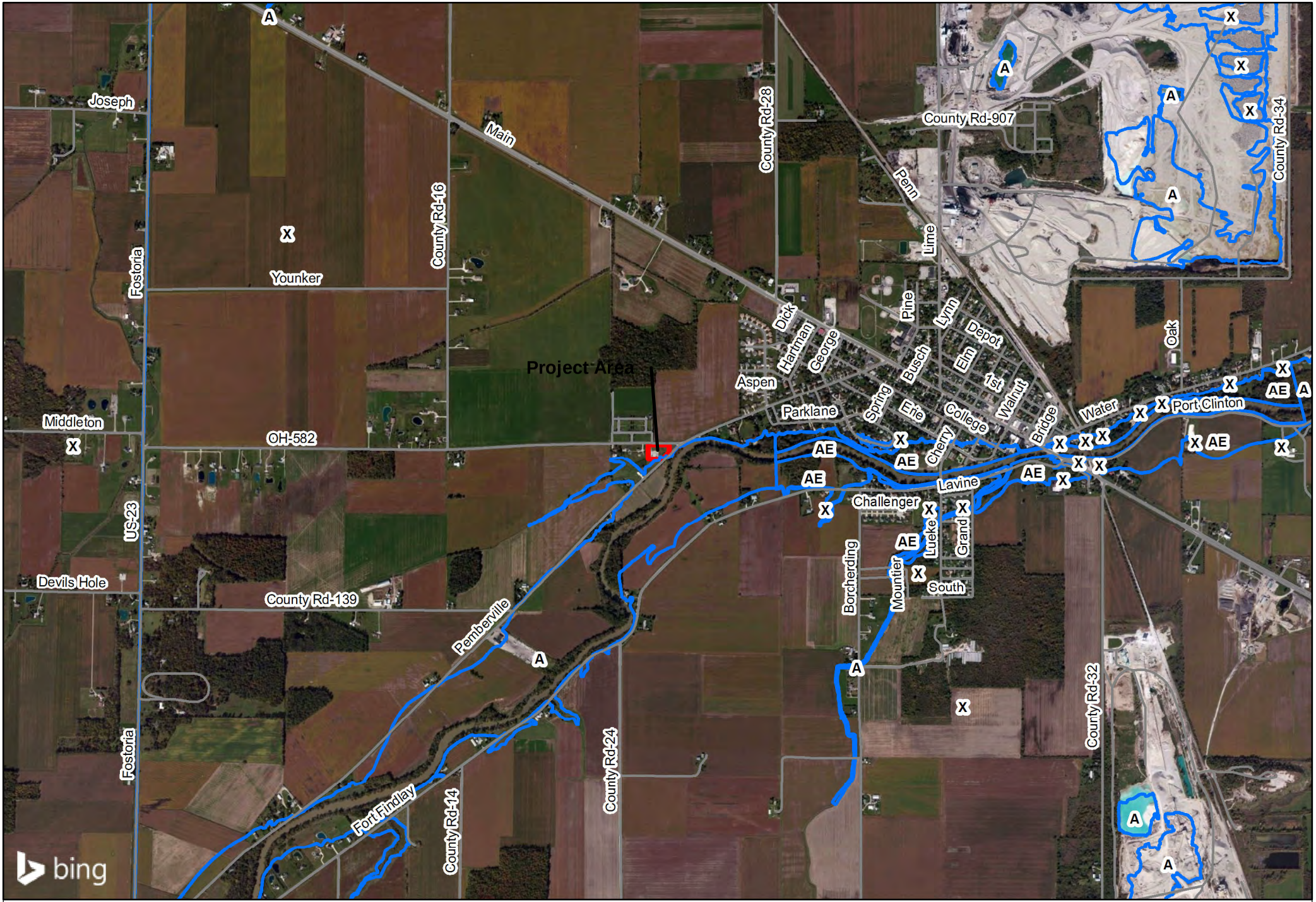
Project Title: LEMOYNE – WOODVILLE #2-FOSTERIA 138 KV TRANSMISSION LINE REBUILD AND EXPANSION OF WOODVILLE #2 SUBSTATION PROJECT

PHOTOGRAPH 1

Stream 1 (ephemeral) facing downstream on June 25, 2019. Map Page 2.

PHOTOGRAPH 2

Stream 2 (perennial) facing downstream on June 25, 2019. Map Page 3.



Legend

- FEMA Flood Zones
- Woodville No2

N

Woodville No2 Substation
Project Area Exhibit 17

0 ¼ ½ ¾ 1 Miles

Map Created On: 5/29/2019