

Construction Notice for the Fostoria – East Lima 138 kV Cut-In for North Woodcock Station Project



An **AEP** Company

*BOUNDLESS ENERGY*SM

PUCO Case No. 21-0979-EL-BNR

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

Submitted by:
Ohio Power Company

September 29, 2021

CONSTRUCTION NOTICE

Ohio Power Company

Fostoria – East Lima 138 kV Cut-In for North Woodcock Station Project

4906-6-05 Accelerated Application Requirements

Ohio Power Company (“AEP Ohio” or the “Company”) provides the following information to the Ohio Power Siting Board (“OPSB”) in accordance with the accelerated application requirements of Ohio Administrative Code Section 4906-6-05.

4906-6-05(B) General Information

B(1) Project Description

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

The Company is proposing the Fostoria – East Lima 138 kV Cut-In for North Woodcock Station Project (the Project), in Richland Township, Allen County, Ohio. The purpose of the Project is to replace the existing hard tap located along the existing Fostoria – East Lima 138 kV Transmission Line, with a looped configuration to serve the non-jurisdictional North Woodcock Station. The Project involves constructing an in and out configuration with two, separate 138 kV transmission line expansions, each less than 0.1 mile long, into the North Woodcock Station. There are a total of 3 steel poles to tie the circuits to North Woodcock Station.

In addition, an existing lattice structure will be replaced with a steel pole structure (Structure 141) in order to raise the height of the existing Fostoria – East Lima 138 kV Transmission Line to accommodate the crossing of the greenfield North Woodcock 69-kV Extension Line. Figures 1 and 2 show the location of the Project.

The Project meets the requirements for a Construction Notice (CN) as defined by Items 1(a) of Appendix A to Ohio Administrative Code Section 4906-1-01, *Application Requirement Matrix for Electric Power Transmission Lines*:

(1) New construction, extension, or relocation of single or multiple circuit electric power transmission line(s), or upgrading existing transmission or distribution line(s) for operation at a higher transmission voltage, as follows:

(a) Line(s) not greater than 0.2 miles in length.

The Project has been assigned Case No. 21-0979-EL-BNR.

B(2) Statement of Need

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

The Company is proposing to connect the Fostoria – East Lima 138 kV Transmission Line into North Woodcock Station with an in-and-out configuration to accommodate work inside North Woodcock Station. North Woodcock Station is currently connected to the Fostoria – East Lima 138 kV Transmission Line via a three way switch outside the station and serves as a source to 34.5 kV and 69 kV customers in the area. It is part of the overall Bluffton Area Improvements Project which addresses asset performance/condition/risk needs associated with the 34.5 kV lines and transformers in the area, including hard taps and a normally open switch that cannot be closed without causing thermal overloads on the 34.5 kV lines. The work inside North Woodcock Station is required to replace deteriorating equipment and will facilitate other work required in the area to reconfigure the 34.5 kV sub-transmission network in the area, including a proposed retirement of approximately 13 miles of 34.5 kV line.

AEP has identified 35 open conditions along the 10-mile section of the 34.5kV line between Bluffton and Rockhill stations that will be retired as part of this Project. Most of the wood poles comprising this circuit are pre 1980-vintage. This line has experienced 1 momentary and 1 permanent outage in the last 10 years. Approximately 0.93 miles of this 34.5 kV line section between Hancock Wood Airport Delivery Point and Bluffton Station is nearing its thermal capacity under N-1-1 conditions. The Morrical – North Woodcock 34.5 kV line has 77 open conditions. Half of the wood poles comprising this circuit are pre-1980 vintage. This line has experienced 16 momentary and 3 permanent outages in the last 10 years. The 0.64 mile 34.5 kV line section between Bluffton Station and Woodcock Switch is nearing its thermal capacity under N-1-1 conditions.

There are also operational concerns with the 34.5 kV network in the area. The 34.5 kV Bluffton Switch is currently operated as normally opened towards Woodcock station to prevent thermal overloads on the 34.5 kV system under N-1-1 conditions. Additionally, hard taps currently exist for customers at both DTR and National Lime and Stone delivery points. Hard taps limit sectionalizing and increase the duration of outages significantly. In essence, for an outage involving a component at a station served by a hard tap, all other stations along the Transmission circuit are subject to an outage. These stations cannot be restored automatically or manually since there are no switches installed to isolate the faulty component on the grid. As a result, field individuals have to remove physical conductor along the line using bigger equipment thus increasing the duration of the outage for all customers served of the Transmission circuit.

Without the completion of this 138kV line cut-in Project, the existing asset and operational needs will not be addressed on the existing 34.5 kV system. The 34.5 kV network between Morrical, Rockhill, and North Woodcock stations directly serves eleven stations, including three stations for Hancock Wood Cooperative, three for AEP Ohio, and five other customer owned stations, totaling approximately 28 MW of peak load, subjecting all customers to continued operational concerns around the normally opened switch and future outage risk as the 34.5 kV assets serving these stations continue to deteriorate. The hard taps and normally opened switch configuration would continue to contribute to poor outage performance and limit the ability

to sectionalize the system as needed during outages. Without the Project, an additional 15 miles of 34.5 kV line would require to be rebuilt instead of retired due to loading concerns and the condition of the assets.

The proposed need and solution were submitted to PJM on 1/11/2019 & 9/25/2019, and subsequently assigned a PJM supplemental number of S2060. This Project is related to the Bluffton Area Improvements Project included in the Ohio Power Company's most recent 2021 Long-Term Forecast Report on Pages 72-76 (FE-T10) (See Appendix B).

B(3) Project Location

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

The location of the Project in relation to existing transmission lines and substations is shown on Figure 1, in Appendix A. Figure 2, in Appendix A, identifies the Project components on a 2018 aerial photograph.

B(4) Alternatives Considered

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

Due to the close proximity of the existing Fostoria-East Lima 138 kV transmission line and the North Woodcock Station, no other alternatives were considered for the Project. Any other alternative would add additional length to the Project without any additional benefit. Therefore, this Project represents the most suitable and least impactful alternative. Socioeconomic, land use, and ecological information is presented in Section B(10).

B(5) Public Information Program

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

The Company maintains a website (<http://aeptransmission.com/ohio/>) which provides the public access to an electronic copy of this CN. An electronic copy of the CN will be served to the public library in each political subdivision affected by this proposed Project. Lastly, the Company also retains ROW land agents who discuss project timelines, construction, and restoration activities with affected owners and tenants.

B(6) Construction Schedule

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

Construction of the Project is planned to begin in January 2022 with an anticipated in-service date of October 2022.

B(7) Area Map

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

Figure 1, in Appendix A, identifies the location of the Project area on a United States Geological Survey 1:24,000 quadrangle map. Appendix A, Figure 2 is an aerial map of the Project area.

To visit the Project from downtown Columbus, Ohio, take I-70 W/I-71 S toward I-70W/Dayton for 6 miles. Take exit 93 for I-270 N toward Cleveland for 9 miles. Take exit 17B to merge onto OH-161 W/US-33 W for 46.5 miles. Exit onto OH-117 W toward OH-366/Huntsville/Lima for 0.3 mile. Merge onto OH-117 W for 8.8 miles. Turn slightly right onto OH-235 N then stay left on OH-235 N for 8.6 miles. Turn left onto Township Road 104 for 1.2 miles. Turn right onto S Hardin Road for 15.9 miles. The Project is located 1 mile north of the intersection of Main Street and Hancock Road.

B(8) Property Agreements

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

A list of properties required for the Project are provided in the table below.

Property Parcel Number	Agreement Type	Easement/ Option Obtained (Yes/No)
18360004002000	New Easement Agreement	No
440001031871	Supplemental Existing Easement	No

B(9) Technical Features

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

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

The transmission line cut-ins from the Fostoria – East Lima 138 kV Transmission Line is estimated to include the following:

Voltage:	138 kV
Conductors (Station Cut-in):	795 KCM 26/7 ACSR Drake
Conductors (Exist. Line North Circuit):	397.5 KCM ACSR 30/7 Lark
Conductors (Exist. Line South Circuit):	336.4 KCM ACSR 30/7 Oriole
Static Wire:	159 KCM ACSR 12/7 Guinea
Insulators:	Polymer w/ Corona Ring
ROW Width:	100 feet

Structure Types: One (1) double circuit galvanized steel pole, custom davit arm suspension structure on drilled concrete pier.
One (1) double circuit galvanized steel pole, custom dead-end structure on drilled concrete pier.
Two (2) single circuit galvanized steel pole, custom deadend structure

B(9)(b) Electric and Magnetic Fields

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

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

i) Calculated Electric and Magnetic Field Levels

Not applicable. No occupied residences or institutions are located within 100 feet of the Project.

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

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

Not applicable. No occupied residences or institutions are located within 100 feet of the Project. The transmission line work associated with the Project will occur through acquired easements.

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

The estimated capital cost of the project.

The capital costs estimate for the proposed Project, which is comprised of applicable tangible and capital costs, is approximately \$600,000 using a Class 4 estimate. Pursuant to the PJM OATT, the costs for this Project will be recovered in the Ohio Power Company's FERC formula rate (Attachment H-14 to the PJM OATT) and allocated to the AEP Zone.

B(10) Social and Economic Impacts

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

B(10)(a) Operating Characteristics

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

The Project is located in Richland Township, Allen County, Ohio. Land use in the Project area is predominantly vacant/agricultural land with scattered residences and farms. Tree clearing is not anticipated for the Project. Two residences are located within 1,000 feet of the centerline of the Project, however, no impact are anticipated as the Project is located between existing facilities. There are no parks, schools, churches, cemeteries, wildlife management areas, or nature preserve lands within 1,000 feet of the centerline of the Project.

B(10)(b) Agricultural Land Information

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

The existing land use in the vicinity of the Project is predominately agricultural with scattered farms and residential properties. Parcel No. 18360004002000 is registered as agricultural district land in the Project area, based on a review of the Allen County auditor website on September 23, 2021. The Project encompasses 0.7-acre and is currently used for row crop land.

B(10)(c) Archaeological and Cultural Resources

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

The Project area is located north of Bluffton. North, east and west of the Project is agricultural croplands and to the south is a residential property and more agricultural lands. The Project area is located in an area of relatively flat terrain.

CONSTRUCTION NOTICE FOR FOSTORIA–EAST LIMA 138kV CUT-IN for NORTH WOODCOCK STATION

The literature review conducted for this Project did not indicate previously recorded resources within the Project area. There were no sites identified by these surveys relative to the current project. There are no significant resources currently known from the project area.

Cultural resource investigation also included field reconnaissance/testing and report preparation for archaeological resources. The field investigations involved subsurface testing, surface collection and visual inspection. No previously unrecorded sites were identified during investigation.

Additionally, a history/architecture survey was completed for the Project and consists of a systematic survey of all properties 50 years of age or older that are situated within the project area or have a viewshed of the proposed project area. No previously unrecorded sites were identified during investigation.

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

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

The Project requires constructing 4 structure which is below the reporting levels for an OEPA Stormwater Pollution Prevention Plan.

No structures or proposed access roads are located within the Federal Emergency Management Agency's ("FEMA") 100-year floodplain area. Therefore, no floodplain permitting is expected to be required for the Project.

There are no other known local, state or federal requirements that must be met prior to commencement of the Project.

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

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

Coordination letters were submitted to the United States Fish and Wildlife Service ("USFWS"), Ohio Ecological Services Field Office, and the Ohio Department of Natural Resources ("ODNR") Ohio Natural Heritage Program ("ONHP"), seeking an environmental review of the Project for potential impacts to threatened or endangered species. The ODNR ONHP/DOW and USFWS responses are included in Appendix C. The ODNR ONHP response indicated that the Project lies within a 1-mile radius of the least darter (*Estheostoma microperca*), state species of concern. The ODNR DOW response indicated that the Project lies within the range of the following species: the Indiana bat (*Myotis sodalis*), state endangered and federally endangered species; the clubshell (*Pleurobema clava*), state endangered and federally

CONSTRUCTION NOTICE FOR FOSTORIA–EAST LIMA 138kV CUT-IN for NORTH WOODCOCK STATION

endangered species; the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel; and, the pondhorn (*Uniomerus tetralasmus*), a state threatened mussel. Due to the location of the Project, and that there is no in-water work proposed in a perennial stream of sufficient size to provide suitable habitat, this Project is not likely to impact these species.

The Project is within the range of 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, this Project is not likely to impact this species. As there is no in-water work proposed in a perennial stream of sufficient size to provide suitable habitat, this Project is not likely to impact these 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). This type of habitat is not present within the Project area; therefore, the Project will not likely impact this species.

The USFWS response indicated that due to the Project type, size and location, the USFWS does not anticipate adverse effect to federally endangered, threatened, proposed or candidate species. Further, the USFWS response indicated there are no federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the Project.

B(10)(f) Areas of Ecological Concern

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

A wetland and stream delineation survey was completed by the Company's consultant within the Project area in December 2019 and April 2021. During the field survey, no wetlands or streams were identified within the Project area (Appendix D). Therefore, the Company does not anticipate any impacts to wetlands or streams by Project construction. No other areas of ecological concern were identified within the Project area.

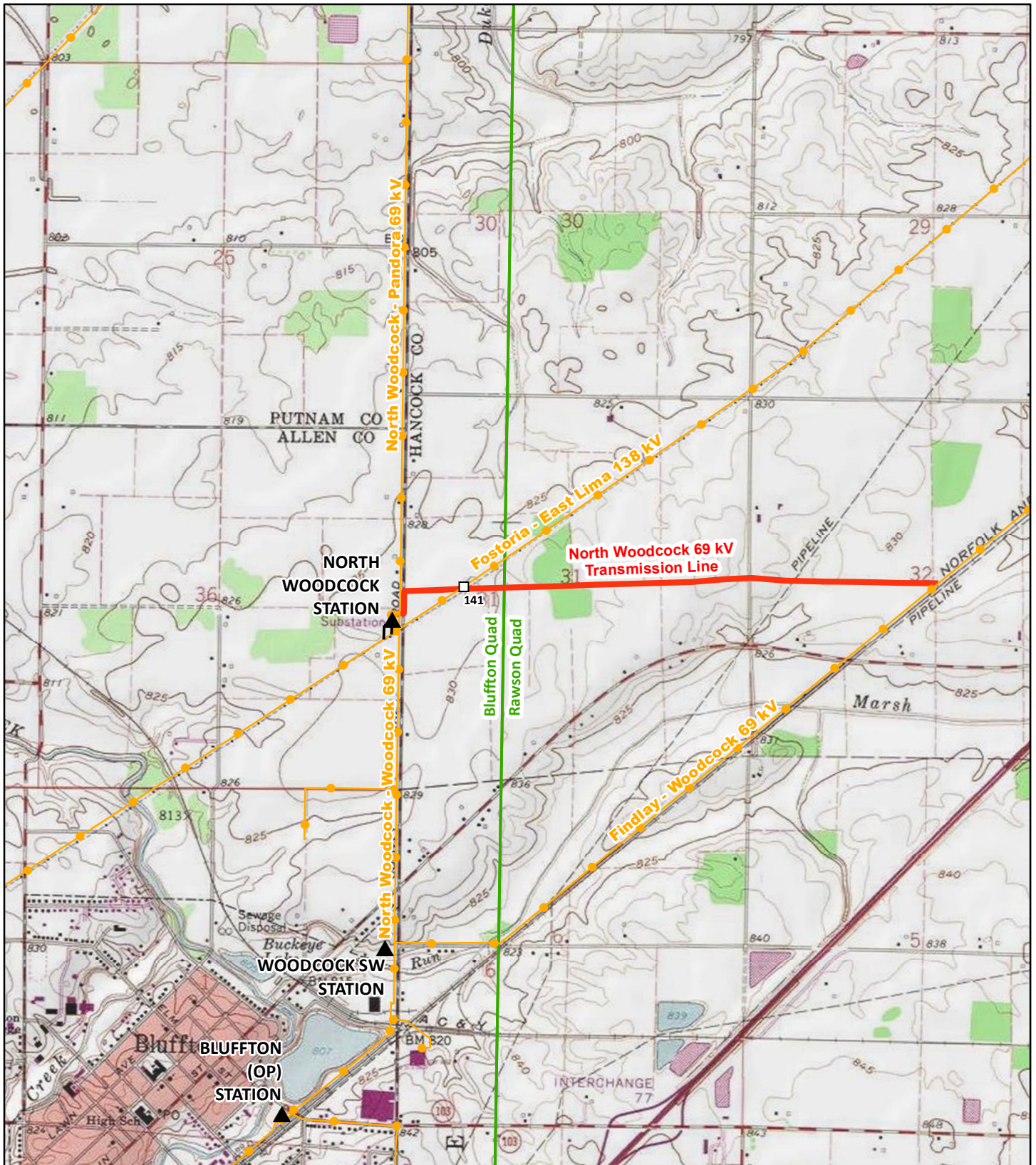
The FEMA Flood Insurance Rate Map was reviewed to identify floodplains/flood hazard areas within the Project area (specifically, map number 39003C0095E). Based on this mapping, no mapped FEMA floodplains are located in the Project area. Therefore, no floodplain permitting is required for the Project. There are no other local, state or federal requirements for construction of the Project.

B(10)(g) Unusual Conditions

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

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

Appendix A Project Maps

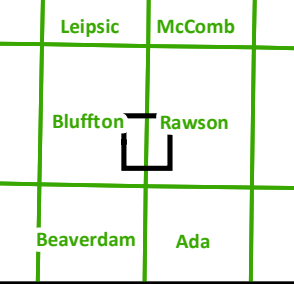


- Proposed Structure
- ▲ AEP Non-Jurisdictional Substation
- Proposed 138 kV Transmission Line
- Existing Transmission Line
- Greenfield 69 kV Transmission Line
- USGS 7.5' Topographic Quad Boundary

Sources:
ESRI USA Topo Maps (2020)

State Plane Ohio North
NAD 83

September 27, 2021



**Map 1
Quad Map**

**Fostoria – East Lima 138 kV
Transmission Line Tie-Ins Project**

0 1,000 2,000
 Feet

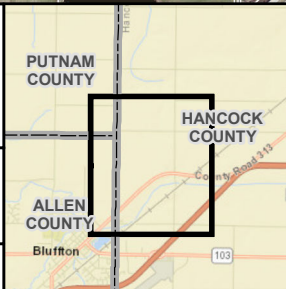


- ▲ AEP Non-Jurisdictional Substation
- Proposed Structure
- Proposed 138 kV Transmission Line
- Existing Transmission Line
- Greenfield 69 kV Transmission Line
- Parcel Boundary


Sources:
OSIP Imagery (2018)
Allen County Parcels (2020)

State Plane Ohio North
NAD 83

September 27, 2021

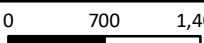


Map 2
Aerial Map



Fostoria – East Lima 138 kV
Transmission Line Tie-Ins Project

0 700 1,400



Feet

Appendix B Long Term Forecast Report and PJM Solution

PUCO Form FE-T9
AEP Ohio Transmission Company
Specifications of Planned Transmission Lines

LINE NAME AND NUMBER:	North Woodcock - Oilers 34.5 kV (s2060)
POINTS OF ORIGIN AND TERMINATION	North Woodcock,Oilers; INTERMEDIATE STATION - S. Mt Cory Sw., E. Mt Cory Sw., Rawson Sw, West Findlay, Sw, Fliprock Sw
RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	1.5 miles / 60ft / 1 circuit (of new construction)
VOLTAGE: DESIGN / OPERATE	69kV / 34.5kV
APPLICATION FOR CERTIFICATE:	N/A
CONSTRUCTION:	2020-2022
CAPITAL INVESTMENT:	\$3.3M
PLANNED SUBSTATION:	NAME - N/A; TRANSMISSION VOLTAGE - N/A; ACREAGE - N/A; LOCATION - N/A
SUPPORTING STRUCTURES:	Overhead, Steel, Pole
PARTICIPATION WITH OTHER UTILITIES	N/A
PURPOSE OF THE PLANNED TRANSMISSION LINE	Rebuild of existing line, to address condition, performance, and risk issues, Allows for creation of new circuit from Boutwell to Airport
CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of further deterioration and performance issues
MISCELLANEOUS:	Not rebuilding whole circuit

PUCO Form FE-T9
AEP Ohio Transmission Company
Specifications of Planned Transmission Lines

LINE NAME AND NUMBER:	North Woodcock - Boutwell 34.5 kV (s2060)
POINTS OF ORIGIN AND TERMINATION	North Woodcock, Boutwell; INTERMEDIATE STATION - Lancers Sw, Bluffton Sw, McIntosh SW, Pirates Sw
RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	3.75 miles / 60ft / 1 circuit (of new construction)
VOLTAGE: DESIGN / OPERATE	69kV / 34.5kV
APPLICATION FOR CERTIFICATE:	N/A
CONSTRUCTION:	2020-2022
CAPITAL INVESTMENT:	\$8.1M
PLANNED SUBSTATION:	NAME - Boutwell; TRANSMISSION VOLTAGE - 138/34.5; ACREAGE - TBD; LOCATION - Southwest of North Woodcock
SUPPORTING STRUCTURES:	Overhead, Steel, Pole
PARTICIPATION WITH OTHER UTILITIES	N/A
PURPOSE OF THE PLANNED TRANSMISSION LINE	Ties Boutwell into 34.5 kV system and provides looped service to Airport delivery point
CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Boutwell station can not be tied into 34.5 kV system
MISCELLANEOUS:	

PUCO Form FE-T9
AEP Ohio Transmission Company
Specifications of Planned Transmission Lines

LINE NAME AND NUMBER:	North Woodcock - Boutwell 34.5 kV (s2060)
POINTS OF ORIGIN AND TERMINATION	North Woodcock, Boutwell; INTERMEDIATE STATION - Lancers Sw, Bluffton Sw, McIntosh SW, Pirates Sw
RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	1.7 miles / 60ft / 1 circuit (of new construction)
VOLTAGE: DESIGN / OPERATE	69kV / 34.5kV
APPLICATION FOR CERTIFICATE:	N/A
CONSTRUCTION:	2020-2022
CAPITAL INVESTMENT:	\$4.8M
PLANNED SUBSTATION:	NAME - Boutwell; TRANSMISSION VOLTAGE - 138/34.5; ACREAGE - TBD; LOCATION - Southwest of North Woodcock
SUPPORTING STRUCTURES:	Overhead, Steel, Pole
PARTICIPATION WITH OTHER UTILITIES	N/A
PURPOSE OF THE PLANNED TRANSMISSION LINE	Rebuild of existing line, to address condition, performance, and risk issues, Allows for creation of new circuit from Boutwell to Airport
CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of further deterioration and performance issues
MISCELLANEOUS:	

PUCO Form FE-T9
AEP Ohio Transmission Company
Specifications of Planned Transmission Lines

LINE NAME AND NUMBER:	Dolahard - East Lima 69 kV (s2060)
POINTS OF ORIGIN AND TERMINATION	Dolahard, East Lima; INTERMEDIATE STATION - Beaverdam, Lafayette, Ada
RIGHTS-OF-WAY: LENGTH / WIDTH / CIRCUITS	1.3 miles / 60ft / 2 circuit (of new construction)
VOLTAGE: DESIGN / OPERATE	69kV / 69kV
APPLICATION FOR CERTIFICATE:	N/A
CONSTRUCTION:	2020-2022
CAPITAL INVESTMENT:	\$4.8M
PLANNED SUBSTATION:	NAME - N/A; TRANSMISSION VOLTAGE - N/A; ACREAGE - N/A; LOCATION - N/A
SUPPORTING STRUCTURES:	Overhead, Steel, Pole
PARTICIPATION WITH OTHER UTILITIES	N/A
PURPOSE OF THE PLANNED TRANSMISSION LINE	Allows for the retirement of 10.1 miles of aging 34.5 line between Beaverdam and Bluelick
CONSEQUENCES OF LINE CONSTRUCTION DEFERMENT OR TERMINATION	Increased risk of further deterioration and performance issues
MISCELLANEOUS:	

Appendix B PJM Submittal

AEP Transmission Zone M-3 Process Bluffton Area Improvement Project

Need Number: AEP-2018-OH033

Process Stage: Solutions Meeting 09/25/2019

Previously Presented: Needs Meeting 1/11/2019

Supplemental Project Driver: Equipment/Material/Condition/Performance/Risk, Operational Flexibility and Efficiency.

Specific Assumption References: AEP Guidelines for Transmission Owner Identified Needs

Problem Statement:

Equipment Material/Condition/Performance/Risk:

North Woodcock 138/69/34.5 kV Station:

- 138/69/34.5 kV, 50 MVA Transformer #1 (1966 vintage) is recommended for replacement due to dielectric strength breakdown, short circuit strength breakdown and bushing damage.
- 1200A/21kA, 69kV CB "A" (1966 vintage) and 1200A/17kA, 34.5kV CB "E" (1952 vintage), are in need of replacement due to bushing damage, excess numbers of fault operations (143), and lack of spare part availability.
- 34.5 kV grounding bank is recommended for replacement due to dielectric strength breakdown, numerous thermal faults and carbonization of insulating paper.

Bluffton – Rockhill 34.5 kV:

- The circuit has 55 open conditions. Most of the 381 wood poles on this circuit are pre 1980 vintage. This line has experienced 9 momentary and 4 permanent outages in the last 10 years.

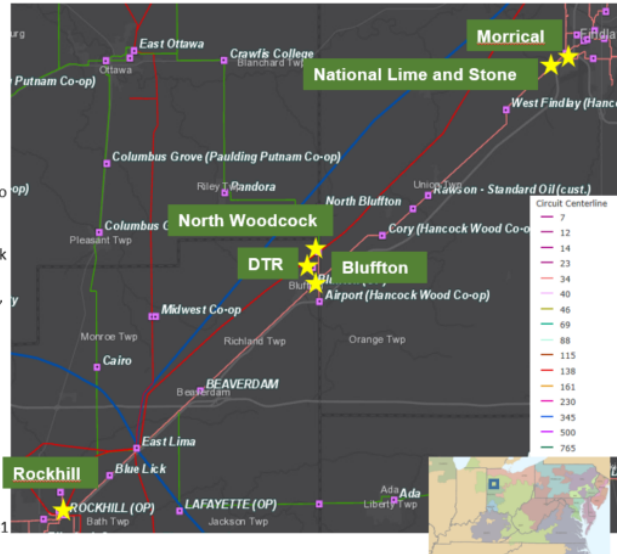
Morrical – N. Woodcock 34.5 kV:

- The circuit has 77 open conditions. Half of the 400 wood poles on this circuit are pre 1980 vintage. This line has experienced 16 momentary and 3 permanent outages in the last 10 years.

Operational Flexibility and Efficiency:

Bluffton 34.5 kV:

- The switch towards Woodcock is normally open (N.O.) to prevent thermal overloads under N-1-1 conditions.
- Hard taps currently exist for customers at both DTR and National Lime and Stone. Hard taps limit sectionalizing can cause mis-operations and over tripping



SRRTEP-W – AEP Supplemental 09/25/2019

Need Number: AEP-2018-OH033

Process Stage: Solutions Meeting 09/25/2019

Potential Solution:

Build a new **Boutwell** 138/69/34.5kV Station as a three breaker ring bus cutting into the East Lima – New Liberty 138kV circuit. **Estimated Cost: \$11.6M**

Cut in the East Lima New Liberty 138 kV circuit and build to the new **Boutwell** station: **Estimated Cost: \$2.7M**

Construct a new 3.75 mile single circuit 69kV (34.5kV operated) line using 556 ACSR conductor connecting the Hancock Wood Airport delivery point with the new **Boutwell** Station. **Estimated Cost: \$8.1M**

Construct 1.5 miles of greenfield single circuit 69kV (34.5kV operated) line using 556 ACSR conductor from North Woodcock to the South Mt Cory – Woodcock Sw 69 kV line (34.5 kV Operated). **Estimated Cost: \$3.3M**

Rebuild the 1.7 mile, 34.5 kV line from Woodcock Sw to Bluffton to Airport as single circuit 69kV (34.5kV operated), using 556 ACSR conductor. **Estimated Cost: \$4.8M**

Rebuild 1.3 mile of existing 34.5 kV line as double circuit 69kV line to loop Beaverdam station into the Dolahard – East Lima 69kV circuit, using 556 ACSR conductor. **Estimated Cost: \$4.6M**

Retire portions of 34.5 kV line between Blue Lick & Beaverdam and Woodcock Sw & South Mt Cory buses. (12.3 miles) **Estimated Cost: \$11.4M**

At North Woodcock station, replace 138/69/34.5 kV transformer #1 with a new 90MVA bank. 138 kV circuit breakers (3000A 40 kA) will be installed on the line towards East Lima and the high side of transformer #1. 69 kV circuit breaker A will be replaced with a new 69 kV breaker (2000A, 40 kA). 34.5 kV circuit breaker E will be replaced with a new 69 kV circuit breaker E (2000A, 40 kA), operated at 34.5 kV. New 69 kV circuit breaker (2000A, 40 kA), operated at 34.5 kV, will be installed on the Morrival circuit. 34.5 kV grounding bank will be replaced and 34.5kV Cap Bank will be retired. **Estimated Cost: \$8.6M**

Install 1200A phase over phase switch (Lancers Switch) at the Airport delivery point. **Estimated Cost: \$0.5M**

Install 1200A phase over phase switch (Pirate Switch) at the DTR hard tap. **Estimated Cost: \$1.1M**

Install 1200A phase over phase switch (Fliprock Switch) at National Lime & Stone hard tap. **Estimated Cost: \$2.4M**

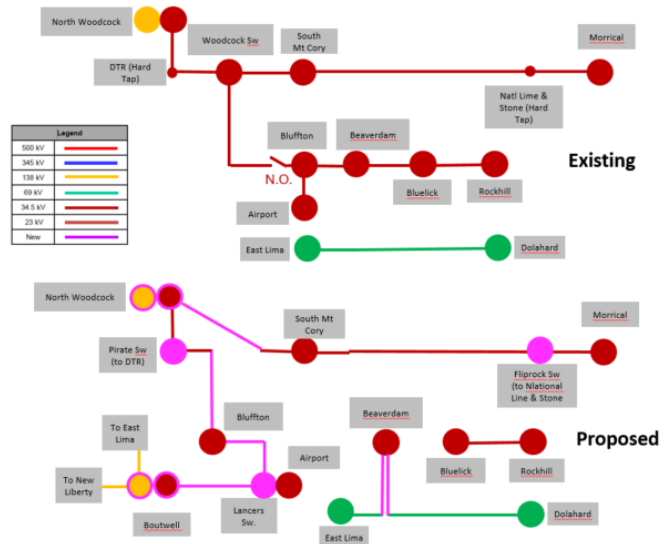
Retire Woodcock Switch. **Estimated Cost: \$0.1M**

Total Transmission Cost: \$59M

Continued on next slide

SRRTEP-W – AEP Supplemental 09/25/2019

AEP Transmission Zone M-3 Process Bluffton Area Improvement Project



Appendix C Agency Correspondence



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

April 16, 2020

Philip Renner
WSP USA
312 Elm Street, Suite 2500
Cincinnati, Ohio 45202

Re: 20-246; AEP North Woodcock Station Expansion Project

Project: The proposed project involves the expansion of the North Woodcock Substation.

Location: The proposed project is located in Richland Township, Allen County, Ohio.

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

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

Least darter (*Etheostoma microperca*), State species of concern

The review was performed on the project area you specified in your request as well as an additional one-mile radius. Records searched date from 1980. This information is provided to inform you of features present within your project area and vicinity.

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

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 clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, and the pondhorn (*Unio merus tetralasmus*), a state threatened mussel. This project must not have an impact on freshwater native mussels at the project site. This applies to both listed and non-listed species. Per the Ohio Mussel Survey Protocol (2020), all Group 2, 3, and 4 streams (Appendix A) require a mussel survey. Per the Ohio Mussel Survey Protocol, Group 1 streams (Appendix A) and unlisted streams with a watershed of 5 square miles or larger above the point of impact should be assessed using the Reconnaissance Survey for Unionid Mussels (Appendix B) to determine if mussels are present. Mussel surveys may be recommended for these streams as well. This is further explained within the Ohio Mussel Survey Protocol. Therefore, if in-water work is planned in any stream that meets any of the above criteria, the DOW recommends the applicant provide information to indicate no mussel impacts will occur. If this is not possible, the DOW recommends a professional malacologist conduct a mussel survey in the project area. If mussels that cannot be avoided are found in the project area, as a last resort, the DOW recommends a professional malacologist collect and relocate the mussels to suitable and similar habitat upstream of the project site. Mussel surveys and any subsequent mussel relocation should be done in accordance with the Ohio Mussel Survey Protocol. The Ohio Mussel Survey Protocol (2020) can be found at:

<http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/licenses%20&%20permits/OH%20Mussel%20Survey%20Protocol.pdf>

The project is within the range of 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, this project is not likely to impact this or other aquatic 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.

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.

Mike Pettegrew
Environmental Services Administrator (Acting)

Renner, Philip

From: Ohio, FW3 <ohio@fws.gov>
Sent: Thursday, March 5, 2020 9:09 AM
To: Renner, Philip
Subject: North Woodcock Sub-Station Expansion Project, Allen County (AEP)



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# 03E15000-2020-TA-0932

Dear Mr. Renner,

We have received your recent correspondence requesting information about the subject proposal. There are no Federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area.

FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project, type, size, and location, we do not anticipate adverse effects to 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 should be initiated to assess any potential impacts.

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

Appendix D Wetland Delineation Report

ENVIRONMENTAL SURVEY REPORT

FOSTORIA – EAST LIMA 138 KV TRANSMISSION LINE PROJECT

ALLEN COUNTY, OHIO

Prepared for:

AEP Ohio Transmission Company, Inc.
8600 Smith's Mill Road
New Albany, Ohio 43054



An **AEP** Company

BOUNDLESS ENERGY™

Prepared by:

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



August 2020

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- Appendix E. Threatened and Endangered Species Coordination

ACRONYMS AND ABBREVIATIONS

AEP	American Electric Power
AEP Ohio Transco	AEP Ohio Transmission Company, Inc.
CWA	Clean Water Act
ESC	Environmental Survey Corridor
°F	Fahrenheit
FAC	Facultative
FACU	Facultative upland
FACW	Facultative wetland
GPS	Global Positioning System
HHEI	Headwater Habitat Evaluation Index
HUC	Hydrologic Unit Code
kV	Kilovolt
NHD	National Hydrography Dataset
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate wetland
ODNR	Ohio Department of Natural Resources
OEPA	Ohio Environmental Protection Agency
OHWM	Ordinary High-Water Mark
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
Project	Fostoria-East Lima 138 kV Transmission Line 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
WSP	WSP USA Inc.

1.0 INTRODUCTION

On behalf of American Electric Power (AEP) Ohio Transmission Company, Inc. (AEP Ohio Transco), WSP USA Inc. (WSP) conducted environmental surveys for the proposed Fostoria-East Lima 138 kV Transmission Line Project (“Project”) located in Richland Township, Allen County, Ohio. The ecological surveys included a wetland and water resource delineation and characterization of potential habitat for state- and federally-listed species. 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 USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* (USACE, 2010) and in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987).

2.0 BACKGROUND INFORMATION

2.1 Project Area

The Project is located within Richland Township, Allen County, Ohio. The Environmental Survey Corridor (ESC) lies north of Rockport Road and west of Phillips Road. The ESC begins at the tie in with the existing Fostoria-East Lima 138 kV Transmission line at approximate coordinates 40.8770°, -83.9469°, continues east to the recently constructed Boutwell Station (40.8780°, -83.9402°), and then north to tie-in to the existing Fostoria-East Lima 138 kV Transmission Line at approximate coordinates 40.8780°, -83.9417°. The ESC is within the Bluffton, Ohio U.S. Geological Survey (USGS) 7.5-minute topographic map quadrangle. The ESC measures 100 feet wide, covered multiple potential alignments for the Project, and encompasses the proposed Project right-of-way (ROW). The ESC also overlaps the previous delineation completed on September 13, 2019 for the Boutwell Station Project. The proposed ROW is approximately 0.6-miles long and 100 feet wide.

Topographic relief within the ESC is generally flat, with elevations ranging between 825 feet and 830 feet above sea level throughout the ESC (Figure 1).

The ESC is primarily composed of agricultural land with existing roadways, in addition to the identified streams and wetland.

2.1.1 Annual Precipitation

Recent rainfall data for Allen County, Ohio was reviewed prior to completing the environmental survey to determine if climatic conditions were normal at the time of the survey. The nearest weather station with both historical and recent precipitation records is located at Findlay Airport, Ohio, approximately 16.3 miles northeast of the Project. Rainfall recorded at this location was above normal for seven of 12 months between June 2019 and May 2020 (Table 2-1). This data suggests climatic conditions were generally wetter than normal during the 12-month time period prior to the environmental survey. This was taken into consideration during the delineation.

TABLE 2-1: Recent Precipitation Data							
Fostoria-East Lima 138 kV Transmission Line Project							
2019 – 2020 Precipitation Data	June 2019	July 2019	August 2019	September 2019	October 2019	November 2019	
Monthly Sum ^{1,3}	6.02	5.15	3.54	2.15	3.31	0.76	
Normal Precipitation ^{2,3}	3.94	3.64	3.24	2.52	2.37	2.83	
Monthly climatic conditions	Above Normal	Above Normal	Above Normal	Below Normal	Above Normal	Below Normal	
	December 2019	January 2020	February 2020	March 2020	April 2020	May 2020	Total
Monthly Sum ^{1,3}	1.85	3.44	1.49	3.58	1.84	4.32	37.45
Normal Precipitation ^{2,3}	2.32	1.91	1.69	2.28	3.22	3.86	33.82
Monthly climatic conditions	Below Normal	Above Normal	Below Normal	Above Normal	Below Normal	Above Normal	Above Normal

¹ Monthly weather summary from Findlay Airport, Ohio weather station (NOAA 2020)

² Climate Statistics at Individual Stations – Data Tables (NOAA 2020)

³ Displayed in inches

2.1.2 Drainage Basins

The ESC is within the 8-digit hydrologic unit code (HUC) 04100008 (Blanchard). The ESC lies within the Cranberry Creek 12-digit HUC (04100008-06-01), as outlined in Table 2-2 (USDA, 2019):

TABLE 2-2: 12-Digit HUCs Crossed by the Project	
Fostoria-East Lima 138 kV Transmission Line Project	
HUC 12-Digit Code	HUC 12-Digit Name
04100008-06-01	Cranberry Creek

Source: USDA 2019

2.1.3 Traditionally Navigable Waters

The U.S. Environmental Protection Agency (USEPA) and USACE assert jurisdiction over “all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce including all waters which are subject to the ebb and flow of the tide” (USACE and USEPA, 2008). These waters are considered traditionally navigable waters (TNW).

All streams (See Section 4.1 for more detail) within the ESC drain to Cranberry Creek, which flows into the Auglaize River, a tributary to the Maumee River, a TNW. No TNWs are crossed by the Project ESC.

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 USACE and the Ohio Environmental Protection Agency (OEPA), and to document their extents and current conditions if present. The USACE and the 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 ESC was evaluated according to the procedures outlined in the USACE 1987 *Corps of Engineers Wetlands Delineation Manual ('87 Manual)* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, (Version 2.0) (Regional Supplement)* (USACE, 2010). 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 2010.

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.

3.1 Desktop Review

Prior to conducting field surveys, WSP staff completed a desktop review by analyzing several federal and state publicly available data sources to assist with determining 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 Wetlands Inventory (NWI) maps of Ohio,

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.

3.2 Site Investigation

On May 29, 2020, 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-decimeter accuracy. The GPS data were then geo-corrected using GPS Pathfinder Office software (version 5.60) and reviewed for quality control. The methodology used to examine each parameter is described in the following sections.

3.2.1 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 onsite 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 Hancock County was not available.

3.2.2 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 *2018 National List of Plant Species* (USACE, 2018)¹. The hydrophytic vegetation indicators are applied in the sequence presented in

¹ 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;

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 (Indicator 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 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.

3.2.3 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 ESC 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*. 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).

3.3 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 ESC were classified as palustrine systems.

3.3.1 Palustrine Systems

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

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.

thousand). This category also includes wetlands lacking such vegetation but with all of the following characteristics:

1. Less than eight 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 two 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 three inches diameter at breast height (DBH) or more and six 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 three inches DBH and less than six 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 semi-permanently flooded.

3.4 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).

3.4.1 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.

3.4.2 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.

3.4.3 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.

3.5 Stream and River Crossings

The Clean Water Act (CWA) provides authority for states to issue water quality standards and designated uses to authorize certain activities in WoUS. 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* (OEPA, 2012).

3.5.1 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).

3.5.2 OEPA Primary Headwater Habitat Evaluation Index

The 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 mi² (259 ha), *and* a maximum depth of water pools equal to or less than 15.75 inches (40 cm)” (OEPA, 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.

4.0 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 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 May 29, 2020 by walking the ESC and evaluating for wetlands and other WoUS. Two streams were delineated within the ESC. Freshwater ponds, stormwater retention basins, and upland drainages were not identified within the ESC. The features identified within the ESC are depicted on the Wetland Delineation Map (Figure 3).

The ESC overlaps with a previous delineation conducted in September 2019 for the Boutwell Station Project. This previous delineation identified one wetland area which falls within the current ESC. Information regarding this feature has also been included with this report.

4.1 Desktop Review

Results of the desktop review and details of the wetlands delineated within the ESC are provided in the following sections. The approximate location and extents of water resources delineated in this survey are depicted in Figure 3. Wetland Determination forms are provided in Appendix A.

ORAM data sheets are provided in Appendix B. Stream assessment forms are provided in Appendix C. Color photographs were taken of the water resources delineated during the field survey and are provided in Appendix D.

4.1.1 Soils Evaluation

According to the NRCS Soil Data for Allen County, Ohio, there are four soil map units shown within the ESC, presented in Table 1 (follows text). Three of the four soil map units are listed as Predominately Non-Hydric (1-32%) and one is listed as Predominately Hydric (66-99%) according to the NRCS National Soil Information System for Ohio. The soils observed by WSP staff during the reconnaissance of the ESC were consistent with the NRCS soil survey mapping.

4.1.2 National Wetlands Inventory Map Review

NWI polygons are potential wetland areas 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 Bluffton, Ohio quadrangles, the ESC contains two mapped NWI polygons. These polygons included one riverine, unknown perennial, unconsolidated bottom (R5UBH) wetland and one riverine, intermittent, stream bed (R4SBC) polygon. These two polygons are connected and cross the ESC at the approximate location of Stream FEL-1. Locations of the NWI mapped wetlands are shown on Figure 2.

4.2 Delineated Wetlands

The investigation of the ESC in September 2019 for Boutwell Station identified one wetland polygon totaling 0.10 acres within the ESC and 0.03 acres within the 100-foot wide ROW. The reported wetland acreage only corresponds to areas delineated within the ESC as some wetlands extended beyond the survey boundary. Wetland BS-1 was identified as a PEM wetland which appears to be hydrologically connected to surface waters that are tributaries to the Maumee River, and therefore will likely be considered jurisdictional by the USACE. No PSS or PFO wetlands were identified within the ESC.

Wetland BS-1 appears to have been dredged and maintained prior to the delineation of this Project ESC on May 29, 2020. As such the area exhibited more stream characteristics and was called a stream (Stream FEL-1).

Table 4-1 provides a summary of wetlands identified within the ESC. Table 2 (follows text) provides specific wetland habitat types, acreages within the ESC, ORAM score and category, as well as information regarding jurisdictional status.

Wetland BS-1 was identified as a Category 1 wetland. No Category 2 or Category 3 wetlands were identified within the ESC. Classification of wetlands was based on ORAM scores. Generally, Category 1 wetlands scored low due to a variety of factors such as: limited size; intensity of surrounding land use and narrow buffer areas; disturbance to soils, vegetation, and hydrology; and the presence of invasive species.

TABLE 4-1: Wetland Summary Table					
Fostoria-East Lima 138 kV Transmission Line Project					
Wetland Type	ORAM Category			Number of Wetlands	Acreage within ESC¹
	Category 1	Category 2	Category 3		
PEM	1	0	0	1	0.03
PSS	0	0	0	0	0.00
PFO	0	0	0	0	0.00
Totals	1	0	0	1	0.03

¹This acreage only corresponds to the area delineated within the 60-foot wide ROW.

Completed USACE wetland and upland determination forms are provided in Appendix A. ORAM data forms are provided in Appendix B. Representative photographs were taken of the wetland during the field survey and are provided in Appendix D.

4.3 Streams and Rivers

A total of two streams were identified, totaling 569 linear feet within the ESC and 200 linear feet within the 100-foot wide ROW, as shown in on Figure 3. Stream FEL-1 was identified as an intermittent stream. Stream FEL-2 was identified as an ephemeral stream. Both streams were assessed using the HHEI methodology (drainage areas less than 1 mi²). Stream FEL-1 appears to have significant nexus with a TNW and is therefore likely to be considered jurisdictional by the USACE. Based on the recent Navigable Waters Protection Rule that no longer considers ephemeral streams USACE jurisdictional, Stream FEL-2 is not considered jurisdictional. It is noted that the USACE will make the final determination of significant nexus with a TNW.

A previous wetland delineation report, dated February 17, 2020, for the Boutwell Station project included portions of the ESC. The delineation identified Wetland BS-01 flowing northward through an agricultural ditch. This resource appears to have been dredged in the interim. During the May 29, 2020 wetland delineation of the ESC, this resource was identified as Stream FEL-1. Characterization as a stream was considered appropriate given the current lack of wetland vegetation and the formation of a defined bed and bank.

Table 2 (follows text) provides the waterbody name, flow regime, stream length within the ESC, field evaluation data and OEPA Section 401 eligibility. Completed HHEI forms are provided in Appendix C. Representative photographs were taken of each stream during the field survey and

are provided in Appendix D. Locations of streams identified within the ESC are shown on Figure 3.

4.3.1 HHEI Stream Results

Two streams totaling 200 linear feet within the 100-foot wide ROW were evaluated using the HHEI methodology. Stream FEL-1 and Stream FEL-2 were identified as Modified, Small Drainage, Warmwater Streams. Details regarding individual streams are provided in Table 2 (follows text).

4.4 Vegetative Communities

WSP ecologists conducted a general habitat survey in conjunction with the stream and wetland field surveys. Portions of the ESC were identified as agricultural land, landscaped areas, old field, scrub/shrub, and urban areas in addition to the aforementioned streams, wetlands, and ponds. A variety of woody and herbaceous habitats, as described below in Table 4-1, are present within the ESC. Habitat descriptions and details on anticipated impacts of construction are provided below. Vegetated land cover can be seen visually from aerial photography provided in Figure 4.

TABLE 4-1: Vegetative Communities Within the ESC			
Fostoria-East Lima 138 kV Transmission Line Project			
Vegetative Community	Description	Approximate Acreage Within the ESC	Approximate Percentage of ESC
Agricultural Land	Agricultural land primarily consisting of soybean and corn fields were present within the ESC.	4.7	97.9%
Streams, Ponds, and Wetlands	Streams, ponds, and wetlands were observed both within and beyond the ESC boundary.	0.0	0.0%
Urban	Urban areas consist of heavily developed residential and commercial land uses, including roads, buildings, and parking lots. These areas are generally devoid of significant woody and herbaceous vegetation.	0.1	2.1%

4.5 Threatened and Endangered Species Coordination

WSP conducted a rare, threatened, and endangered species review for areas crossed by the ESC. The first phase of the evaluation involved a review of online lists of federal and state species of concern. In addition to the review of available literature, a request for Environmental Review was submitted to the Ohio Department of Natural Resources (ODNR). A coordination letter was also submitted to the USFWS soliciting comments on the Project. A summary of the agency coordination is provided below. Correspondence from the USFWS and ODNR is included as Appendix E. Table 3 (follows text) provides a list of species of concern identified in the vicinity of the ESC during the review.

4.5.1 USFWS Coordination

A request for review was submitted to the USFWS on April 8, 2020. In an email dated April 17, 2020 the USFWS provided comments on the Project with regard to federally-listed threatened and endangered species within the Project vicinity. The USFWS indicated that there are no federal wildlife refuges, wilderness areas, or critical habitat within the vicinity of the Project.

4.5.2 ODNR Coordination

A request for review was submitted to the ODNR on April 8, 2020. The ODNR Environmental Review, dated June 11, 2020 included comments from the Ohio Natural Heritage Database Program, Division of Wildlife (DOW), and Division of Water Resources. A review of Natural Heritage Database identified no records of state-listed species within a one-mile radius of the ESC.

The DOW indicated that the ESC lies within the range of the Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*), and recommended seasonal tree clearing dates of October 1st through March 31st. Two additional bat species were provided protection as state-listed species after the ODNR Environmental Review was received. These include the little brown bat (*Myotis lucifugus*, State-Endangered) and the tricolored bat (*Perimyotis subflavus*, State-Endangered).

The ESC lies within the range of three state- and federally-listed freshwater mussel species: the clubshell (*Pleurobema clava*, Federally-Endangered), northern riffleshell (*Epioblasma torulosa rangiana*, Federally-Endangered), and pondhorn (*Unio merus tetralasmus*, State-Threatened). Ohio Mussel Survey Protocol Group 2, 3, and 4 streams will require a mussel survey. Group 1 streams and unlisted streams with a watershed greater than five square miles should be assessed using a reconnaissance survey to determine the presence of freshwater mussels. Further mussel surveys may be recommended for Group 1 streams following completion of a reconnaissance effort. Requirements of freshwater mussel reconnaissance and survey efforts are explained in the Ohio Mussel Survey Protocol. If in-water work is planned in any stream with a watershed greater than five square miles at the point of impact, DOW recommends that information indicating that mussel impacts will not occur be provided. If this is not possible, the DOW recommends that a professional malacologist conduct survey/relocation efforts in accordance with the Ohio Mussel Survey Protocol.

DOW also indicated that the ESC lies within the range of the greater redhorse (*Moxostoma valenciennesi*, State-Threatened). The DOW has recommended in-water work restriction dates from April 15th to June 30th in perennial streams in order to avoid impacts to these species.

The ESC also lies within the range of the upland sandpiper (*Bartramia longicauda*, State-Endangered). This species nests in dry grasslands, pastures, and hayfields. Construction in these types of habitats should be avoided during the April 15th to July 31st nesting period.

5.0 SUMMARY

WSP conducted a wetland delineation and stream assessment for the Fostoria-East Lima 138 kV Transmission Line Project on May 29, 2020. A total of one wetland and two streams were identified within the ESC. No freshwater ponds were delineated within the ESC.

Wetland BS-1, totaling 0.03 acres within the 100-foot ROW, appears to be hydrologically connected to surface waters that are tributaries to the Maumee River, and therefore will likely be considered jurisdictional by the USACE. Wetland BS-1 was classified as a Category 1, PEM wetland. Category 2 and Category 3 wetlands were not identified within the ESC.

The two streams, totaling 200 linear feet within the 100-foot ROW, include one ephemeral stream and one intermittent stream. Both streams were evaluated using the HHEI methodology. Stream FEL-1 (Cranberry Creek) has an existing OEPA Aquatic Life Use Designation of Warmwater Habitat. All streams lie within a watershed designated as “eligible” for the OEPA Section 401 Water Quality Certification (WQC) for the USACE 2017 Nationwide Permits (NWP).

At some point between the delineation of Wetland BS-1 for the Boutwell Station project in September 2019 and this delineation on May 29, 2020, the channel where the wetland was delineated was excavated, therefore exhibited more stream like characteristics. WSP then identified the previous Wetland BS-1 as Stream FEL-1.

The results discussed in this report are confined to the ESC limits described in earlier sections and depicted on Figure 3. 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 which are often determined later after Project design and engineering is completed. If it is determined that this Project will impact WoUS, 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.

Based on observations within the ESC during the field assessment, USFWS comments, potential impacts to the Indiana bat and northern long-eared bat are not anticipated if the recommended seasonal clearing dates are utilized.

It is anticipated that in-water work won't be necessary, therefore no mussel surveys or construction timing windows will be necessary related to protected fish species.

Based on the broad description of upland sandpiper nesting habitat, WSP did not identify potential habitat within the ESC.

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Tables

Table 1. NRCS Soil Map Units in the ESC

Symbol	Soil Map Unit Name and Description	Hydric Rating¹	Hydric %
Blg1B1	Blount silt loam, ground moraine, 2 to 4 percent slopes	Predominantly Non-Hydric	9
Gwg1B1	Glynwood silt loam, ground moraine, 2 to 4 percent slopes	Predominantly Non-Hydric	9
Gwg5C2	Glynwood clay loam, ground moraine, 6 to 12 percent slopes	Predominantly Non-Hydric	7
RdA	Rensselaer loam, 0 to 1 percent slopes	Predominantly Hydric	88

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

Table 2. Wetlands Delineated Within the ESC

Wetland ID	Location		Wetland Type ¹	Delineated Acreage ²		ORAM		Jurisdictional	Proximal Waterbody
	Latitude	Longitude		Within ESC	Within ROW	Score	Category		
Wetland BS-1	40.87753	-83.94288	PEM	0.10	0.03	8	1	Yes	Cranberry Creek

Sum of PEM Wetland Areas 0.10 0.03
 Sum of PSS Wetland Areas 0.00 0.00
 Sum of PFO Wetland Areas 0.00 0.00
 Total Wetland Area 0.10 0.03

¹PEM = palustrine emergent, PSS = palustrine scrub-shrub, PFO = palustrine forested, PUB = palustrine unconsolidated bottom (pond).

²Acreage reflect the area delineated within the respective ESC and ROW limits are approximate based on sub-decimeter accurate GPS data, and are rounded to two decimals

Table 3. Streams Delineated within the ESC

Stream ID	Location		Stream Name	Stream Type	Delineated Length (feet)		Bankfull Width (feet)	OHWM Width (feet)	Field Evaluation			Ohio EPA 401 Eligibility	Survey Corridor (feet)
	Latitude	Longitude			Within ESC	Within ROW			Method	Score	Class/Designation		
Stream FEL-1	40.878563	-83.941627	Cranberry Creek	Intermittent	168	100	20	4	HHEI	27	Warmwater Habitat	Eligible	60
Stream FEL-2	40.877868	-83.942889	UNT to Cranberry Creek	Ephemeral	401	100	12	1	HHEI	17	Modified Small Drainage Warmwater System	Eligible	60

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

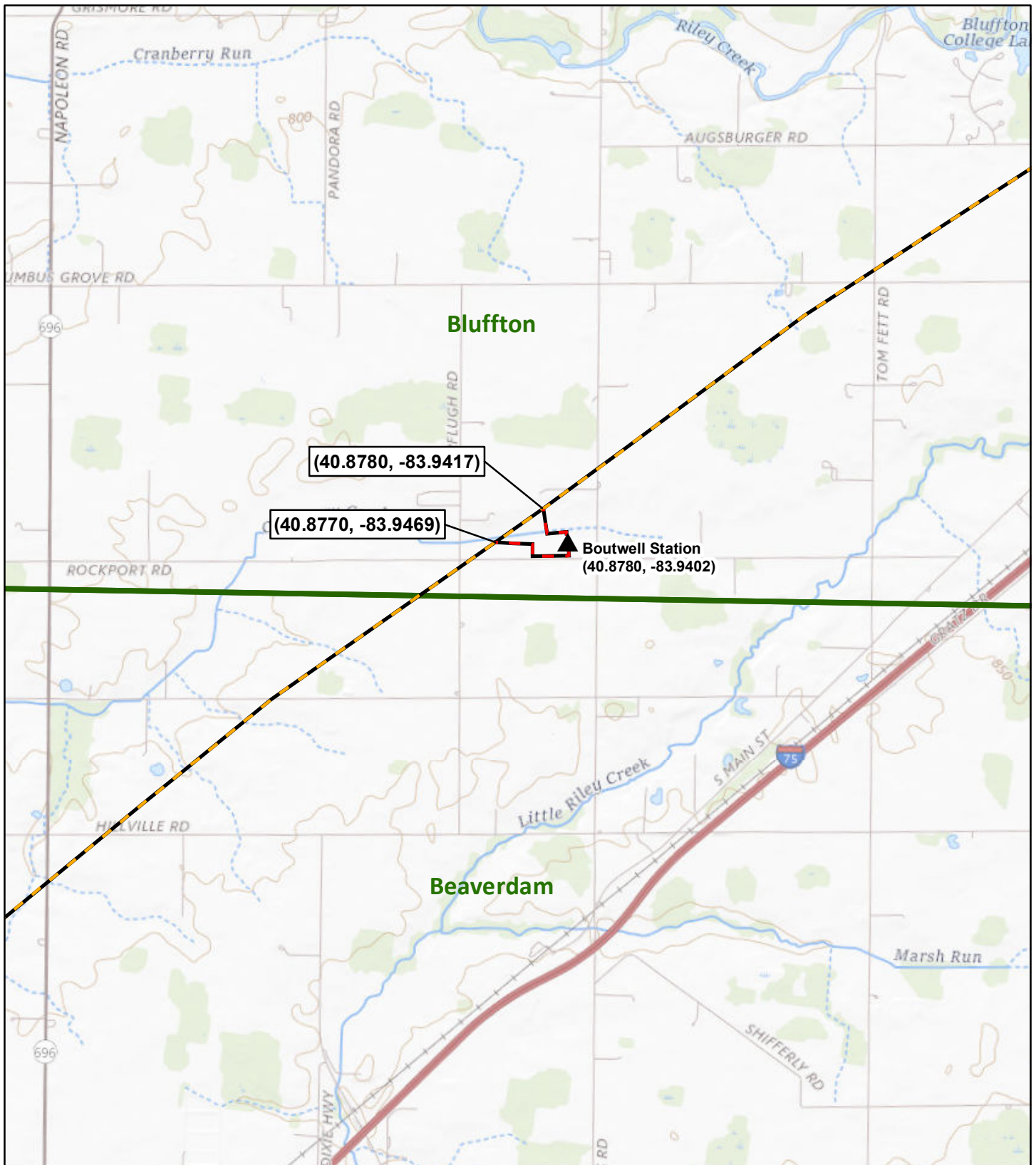
Table 4. Listed Species Commented on by ODNR and USFWS

Common Name (Scientific Name)	State Status	Federal Status	Habitat Description	Potential Habitat Observed in ESC	Agency Comments	Impact Assessment
Mammals						
Indiana bat (<i>Myotis sodalis</i>)	Endangered	Endangered	Winter hibernacula are provided by caves and mines. Summer roost habitat typically includes live or dead trees with exfoliating bark, crevices, or cavities that can be used for roosting. Open sub-canopy areas and flight corridors are important to allow maneuvering during foraging. Proximity to water sources provides a greater density of insect prey.	Yes	USFWS commented that due to the project type, size, and location, in addition to the seasonal tree clearing dates (October 1 through March 31), there are no anticipated impacts to the Indiana bat.	Some potentially suitable habitat is present within the ESC (woodlots and tree lines).
Northern long-eared bat (<i>Myotis septentrionalis</i>)	Endangered	Threatened				
Little brown bat (<i>Myotis lucifugus</i>)	Endangered	Not Listed				
Tricolored bat (<i>Perimyotis subflavus</i>)	Endangered	Not Listed				
Fish						
Greater redhorse (<i>Moxostoma valenciennesi</i>)	Threatened	Not Listed	Habitat is typically provided by clear, fast moving rivers free from contamination.	No	ODNR has recommended in-water work restriction dates of April 15 th to June 30 th in perennial streams. If not in-water work is proposed in perennial streams, the Project is not likely to impact this species.	Suitable habitat was not identified within the ESC.

Table 4. Listed Species Commented on by ODNR and USFWS

Common Name (Scientific Name)	State Status	Federal Status	Habitat Description	Potential Habitat Observed in ESC	Agency Comments	Impact Assessment
Freshwater Mussels						
Clubshell (<i>Pleurobema clava</i>)	Endangered	Endangered	Habitat is typically provided by streams and small rivers with well-oxygenated riffles and sand and gravel substrates.	No	The Ohio Natural Heritage Database includes a record of this species within a one-mile radius of the ESC. In-water work in streams with a drainage area >5 mi ² at the point of impact will require reconnaissance and/or survey efforts per the Ohio Mussel Survey Protocol.	No stream of sufficient size (>5 mi ²) to support mussel populations with known populations of federally-listed species was identified. In-water work is not anticipated
Northern riffleshell (<i>Epioblasma torulosa rangiana</i>)	Endangered	Endangered	Habitat is typically provided by firm sand substrates in riffle areas of large streams and small rivers.	No		
Pondhorn (<i>Unio merus tetralasmus</i>)	Threatened	Not Listed	This species is typically found in ponds, small creeks, and headwater streams with sand or mud substrates.	No		
Birds						
Upland sandpiper (<i>Bartramia longicauda</i>)	Endangered	Not Listed	Nesting habitat is provided in grasslands, pastures, and old-field areas.	No	ODNR has recommended that potential nesting habitat be avoided during the April 15 th to July 31 st nesting period.	Potentially suitable habitat was not identified within the ESC.

Figures



- Proposed Route
- ▲ Existing Substations
- USGS 24k Topo Quad Boundary
- Fostoria - East Lima 138 kV Transmission Line

Sources:
ESRI (2018)

Coordinate System:
Ohio State Plane North
NAD 1983

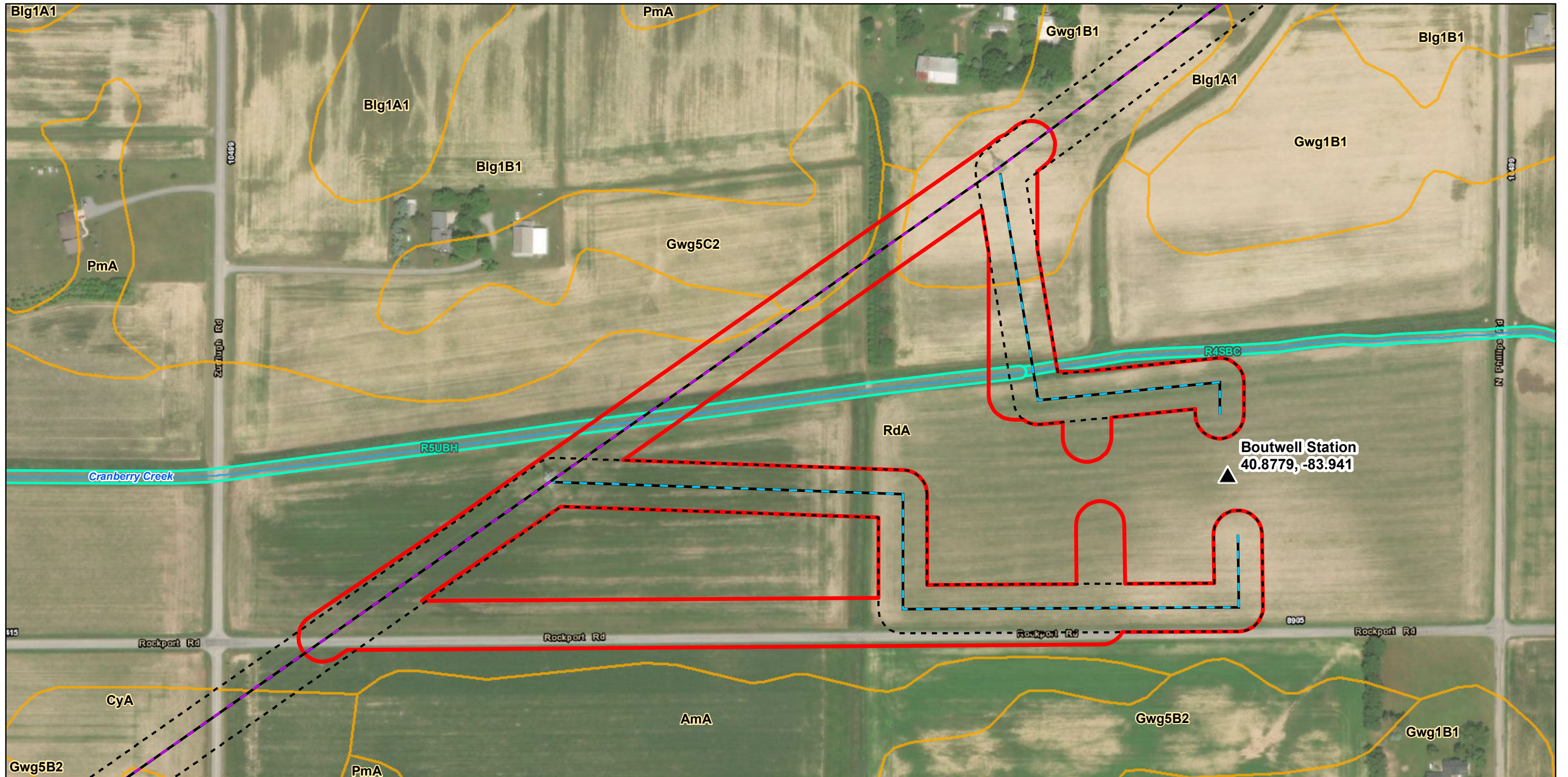
August 25, 2020













FOSTORIA-EAST LIMA 138 KV
TRANSMISSION LINE PROJECT

Figure 1: Project Location Map

0 0.25 0.5
Miles



-  Substation
-  Proposed Route
-  Fostoria - East Lima 138 kV Transmission Line
-  100' Project ROW
-  Project ESC
-  Railroad

-  NHD Stream
-  NHD Waterbody
-  NWI Wetland
-  Soil Map Unit

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


Coordinate System:
 Ohio State Plane North
 NAD 1983

August 17, 2020




FOSTORIA-EAST LIMA 138 KV
 TRANSMISSION LINE PROJECT

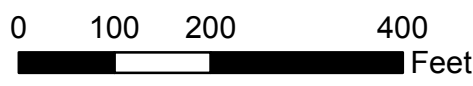
Figure 2: Environmental Basemap



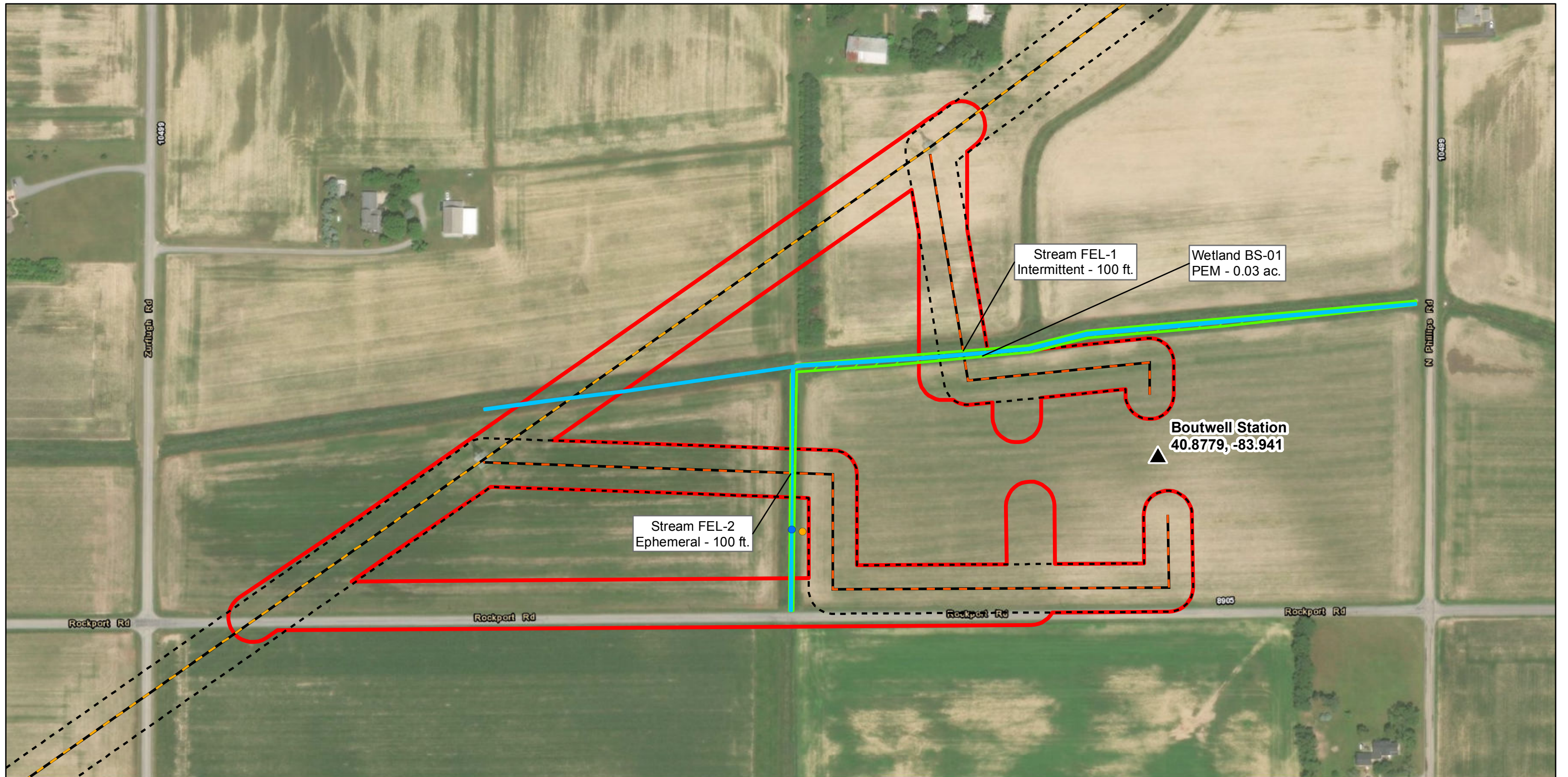
An AEP Company



N



0 100 200 400
Feet



- ▲ Substation
- Proposed Route
- Fostoria-East Lima 138 kV Transmission Line
- - - 100' Project ROW
- ▭ Project ESC

- Upland Point
- Wetland Point
- ▨ Delineated Wetland
- ▬ Delineated Stream

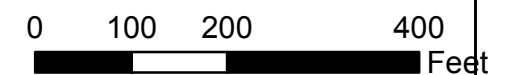
Sources:
Imagery (ESRI)
Topo (USGS)

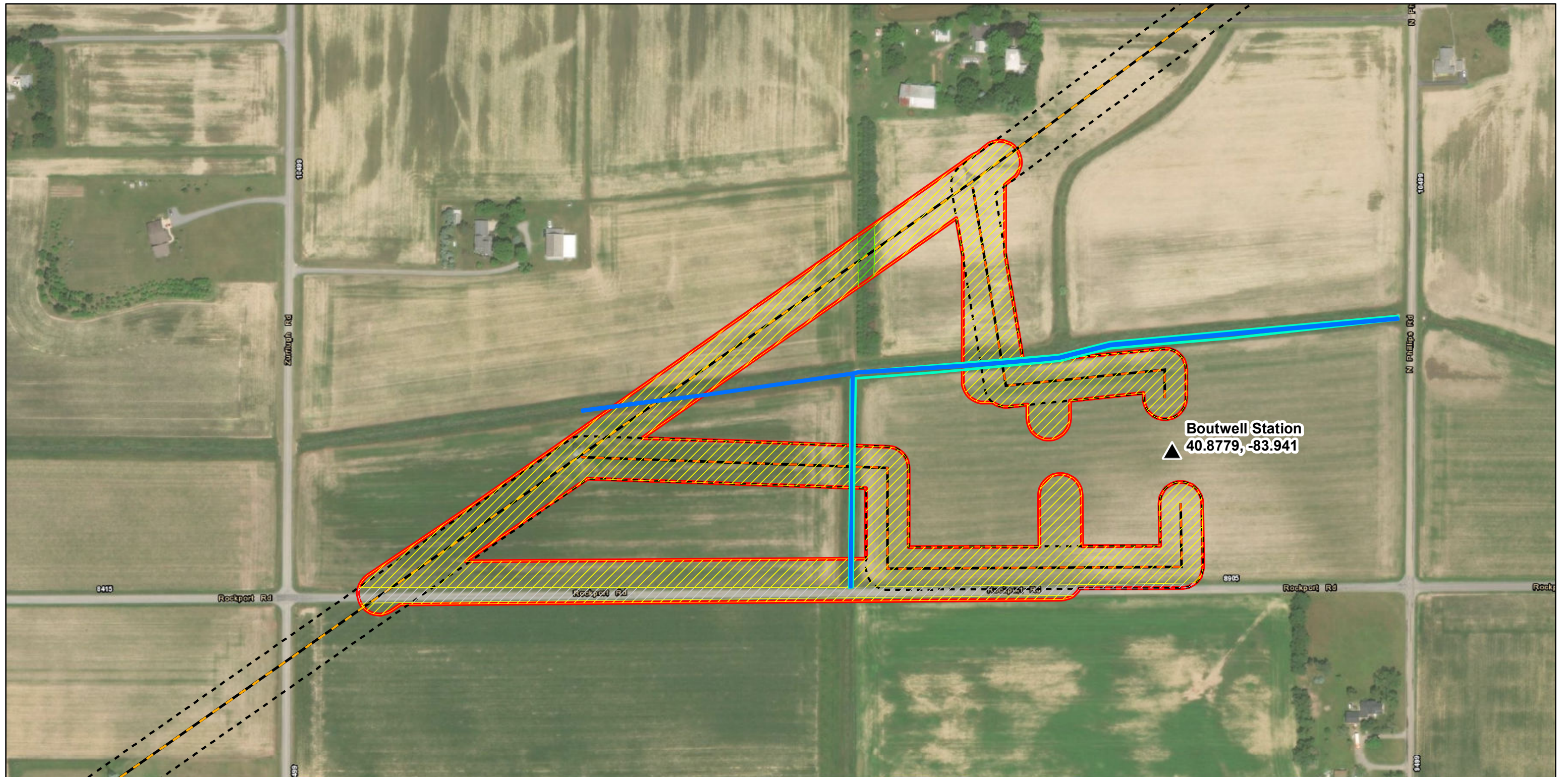
Coordinate System:
Ohio State Plane North
NAD 1983






August 17, 2020






FOSTORIA-EAST LIMA 138 KV
TRANSMISSION LINE PROJECT
Figure 3: Delineated Features





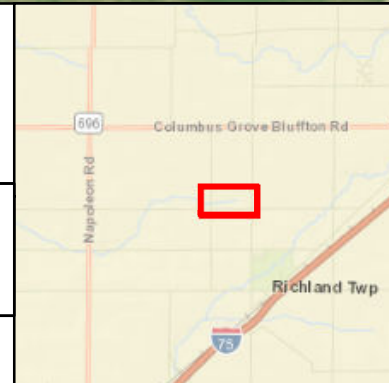
-  Substation
-  Proposed Route
-  Fostoria-East Lima 138 kV Transmission Line
-  100' Project ROW
-  Project ESC
-  Delineated Stream
-  Delineated Wetland

-  Agricultural
-  Successional Hardwood Woodland
-  Urban

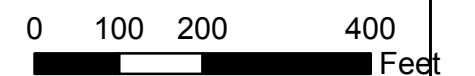
Sources:
Imagery (ESRI)
Topo (USGS)

Coordinate System:
Ohio State Plane North
NAD 1983

August 17, 2020



FOSTORIA-EAST LIMA 138 KV
TRANSMISSION LINE PROJECT
Figure 4: Vegetation Features



Appendix A.

**USACE Wetland Determination Forms –
Midwest Region**

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fostoria-East Lima 138 kV Transmission Line City/County: Allen County Sampling Date: 9/13/2019
 Applicant/Owner: AEP Ohio Transmission Company, Inc. State: OH Sampling Point: WET-01
 Investigator(s): Philip Renner Section, Township, Range: T2S R8E
 Landform (hillside, terrace, etc.): ditch Local relief (concave, convex, none): concave
 Slope (%): 1 Lat: 40.87753 Long: -83.94288 Datum: WGS 1984
 Soil Map Unit Name: Rensselaer loam, 0 to 1 percent slopes (RdA) 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 <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks:	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>r=30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
=Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>r=15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
=Total Cover				
<u>Herb Stratum</u> (Plot size: <u>r=5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Phalaris arundinacea</u>	100	Yes	FACW	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100 =Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>r=15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
=Total Cover				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>100</u>	x 2 = <u>200</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>200</u> (B)
Prevalence Index = B/A = <u>2.00</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes X No

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

SOIL

Sampling Point: WET-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR 5/2	95	10YR 5/6	5	C	M	Loamy/Clayey	Prominent redox concentrations

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

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)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fostoria-East Lima 138 kV Transmission Line City/County: Allen County Sampling Date: 9/13/2019
 Applicant/Owner: AEP Ohio Transmission Company, Inc. State: OH Sampling Point: UPL-01
 Investigator(s): Philip Renner Section, Township, Range: T2S R8E
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none
 Slope (%): 1 Lat: 40.87752 Long: -83.94280 Datum: WGS 1984
 Soil Map Unit Name: Rensselaer loam, 0 to 1 percent slopes (RdA) 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 <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks:	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>r=30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
=Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>r=15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
=Total Cover				
<u>Herb Stratum</u> (Plot size: <u>r=5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Zea mays</u>	35	Yes	UPL	
2. <u>Festuca rubra</u>	35	Yes	FACU	
3. <u>Trifolium pratense</u>	20	Yes	FACU	
4. <u>Plantago lanceolata</u>	8	No	FACU	
5. <u>Ipomoea purpurea</u>	2	No	FACU	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100 =Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
=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: 3 (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 <u> 0 </u>	x 1 = <u> 0 </u>
FACW species <u> 0 </u>	x 2 = <u> 0 </u>
FAC species <u> 0 </u>	x 3 = <u> 0 </u>
FACU species <u> 65 </u>	x 4 = <u> 260 </u>
UPL species <u> 35 </u>	x 5 = <u> 175 </u>
Column Totals: <u> 100 </u> (A)	<u> 435 </u> (B)
Prevalence Index = B/A = <u> 4.35 </u>	

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

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

SOIL

Sampling Point: UPL-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 5/4	100					Loamy/Clayey	

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
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- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
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- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____ Soil Compaction
 Depth (inches): 8

Hydric Soil Present? Yes No

Remarks:

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)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Appendix B.

OEPA ORAM Data Sheets

2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size).

- Select one size class and assign score.
- >50 acres (>20.2ha) (6 pts)
 - 25 to <50 acres (10.1 to <20.2ha) (5 pts)
 - 10 to <25 acres (4 to <10.1ha) (4 pts)
 - 3 to <10 acres (1.2 to <4ha) (3 pts)
 - 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
 - 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
 - <0.1 acres (0.04ha) (0 pts)

1	3
max 14 pts.	subtotal

Metric 2. Upland buffers and surrounding land use.

- 2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
 - MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
 - NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
 - VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)
- 2b. Intensity of surrounding land use. Select one or double check and average.
- VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
 - LOW. Old field (>10 years), shrub land, young second growth forest. (5)
 - MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
 - HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

5	8
max 30 pts.	subtotal

Metric 3. Hydrology.

- 3a. Sources of Water. Score all that apply.
- High pH groundwater (5)
 - Other groundwater (3)
 - Precipitation (1)
 - Seasonal/Intermittent surface water (3)
 - Perennial surface water (lake or stream) (5)
- 3b. Connectivity. Score all that apply.
- 100 year floodplain (1)
 - Between stream/lake and other human use (1)
 - Part of wetland/upland (e.g. forest), complex (1)
 - Part of riparian or upland corridor (1)
- 3c. Maximum water depth. Select only one and assign score.
- >0.7 (27.6in) (3)
 - 0.4 to 0.7m (15.7 to 27.6in) (2)
 - <0.4m (<15.7in) (1)
- 3d. Duration inundation/saturation. Score one or dbl check.
- Semi- to permanently inundated/saturated (4)
 - Regularly inundated/saturated (3)
 - Seasonally inundated (2)
 - Seasonally saturated in upper 30cm (12in) (1)
- 3e. Modifications to natural hydrologic regime. Score one or double check and average.
- None or none apparent (12)
 - Recovered (7)
 - Recovering (3)
 - Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input checked="" type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input checked="" type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input checked="" type="checkbox"/> dredging
<input type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

4	12
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development.

- 4a. Substrate disturbance. Score one or double check and average.
- None or none apparent (4)
 - Recovered (3)
 - Recovering (2)
 - Recent or no recovery (1)
- 4b. Habitat development. Select only one and assign score.
- Excellent (7)
 - Very good (6)
 - Good (5)
 - Moderately good (4)
 - Fair (3)
 - Poor to fair (2)
 - Poor (1)
- 4c. Habitat alteration. Score one or double check and average.
- None or none apparent (9)
 - Recovered (6)
 - Recovering (3)
 - Recent or no recovery (1)

Check all disturbances observed	
<input checked="" type="checkbox"/> mowing	<input checked="" type="checkbox"/> shrub/sapling removal
<input checked="" type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input checked="" type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> woody debris removal	<input checked="" type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

12
subtotal this page

Site: Fostoria-East Lima 138 kV Trans. Line	Rater(s): Philip Renner	Date: 9/13/2019
--	--------------------------------	------------------------

12

subtotal first page

0	12
---	----

max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

-4	8
----	---

max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

8

End of Quantitative Rating. Complete Categorization Worksheets.

Appendix C.

OEPA HHEI Data Forms

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)

<input checked="" type="checkbox"/> WWH Name: Cranberry Creek	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name: <input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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

USGS Quadrangle Name: Bluffton NRCS Soil Map Page: NRCS Soil Map Stream Order
County: Allen Township / City: Richland Township

MISCELLANEOUS

Base Flow Conditions? (Y/N): Y Date of last precipitation: Quantity:
Photograph Information:
Elevated Turbidity? (Y/N): N Canopy (% open): 100%
Were samples collected for water chemistry? (Y/N): N (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) Y If not, please explain:

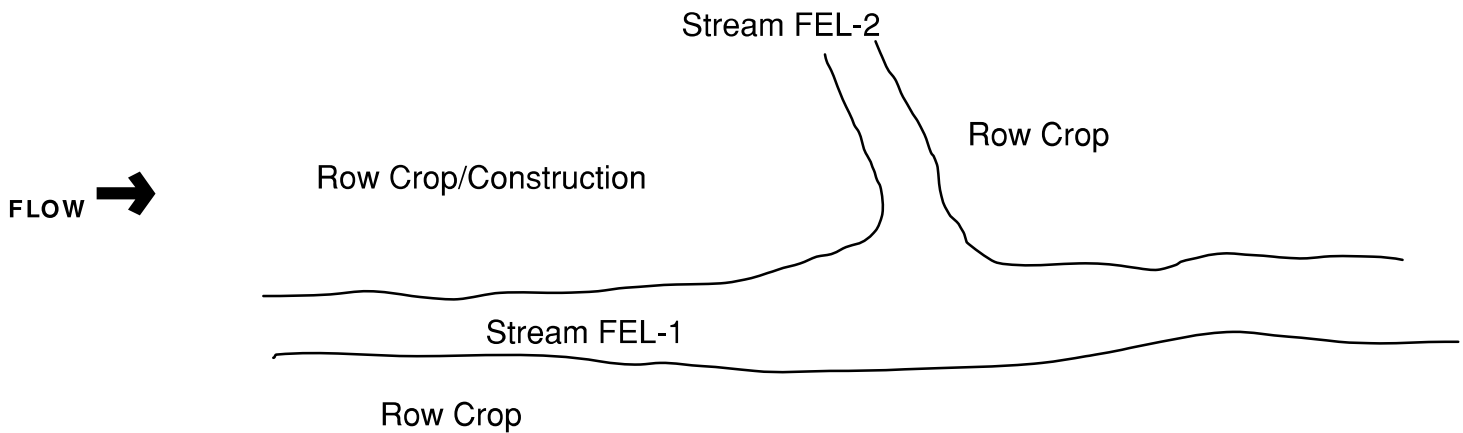
Additional comments/description of pollution impacts:

BIOTIC EVALUATION

Performed? (Y/N): N (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) N Voucher? (Y/N) N Salamanders Observed? (Y/N) N Voucher? (Y/N) N
Frogs or Tadpoles Observed? (Y/N) N Voucher? (Y/N) N Aquatic Macroinvertebrates Observed? (Y/N) N Voucher? (Y/N) N
Comments Regarding Biology:

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

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



SITE NAME/LOCATION

SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²)

LENGTH OF STREAM REACH (ft) LAT. LONG. RIVER CODE RIVER MILE

DATE SCORER COMMENTS

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

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

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

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0%"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SILT [3 pt]	<input type="text" value="100%"/>
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0%"/>

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

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

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

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

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

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

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

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

HHEI Metric Points

Substrate Max = 40

7

A + B

Pool Depth Max = 30

5

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		FLOODPLAIN QUALITY	
L	R	L	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)		(Most Predominant per Bank)	
Wide >10m		Mature Forest, Wetland	<input type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> None		Fenced Pasture	<input type="checkbox"/>
			<input type="checkbox"/>

COMMENTS

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

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

COMMENTS

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

<input checked="" type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

STREAM GRADIENT ESTIMATE

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

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

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

DOWNSTREAM DESIGNATED USE(S)

<input checked="" type="checkbox"/> WWH Name:	<input type="text" value="Cranberry Creek"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

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: Township / City:

MISCELLANEOUS

Base Flow Conditions? (Y/N): Date of last precipitation: Quantity:
Photograph Information:
Elevated Turbidity? (Y/N): Canopy (% open):
Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling reach representative of the stream (Y/N) If not, please explain:

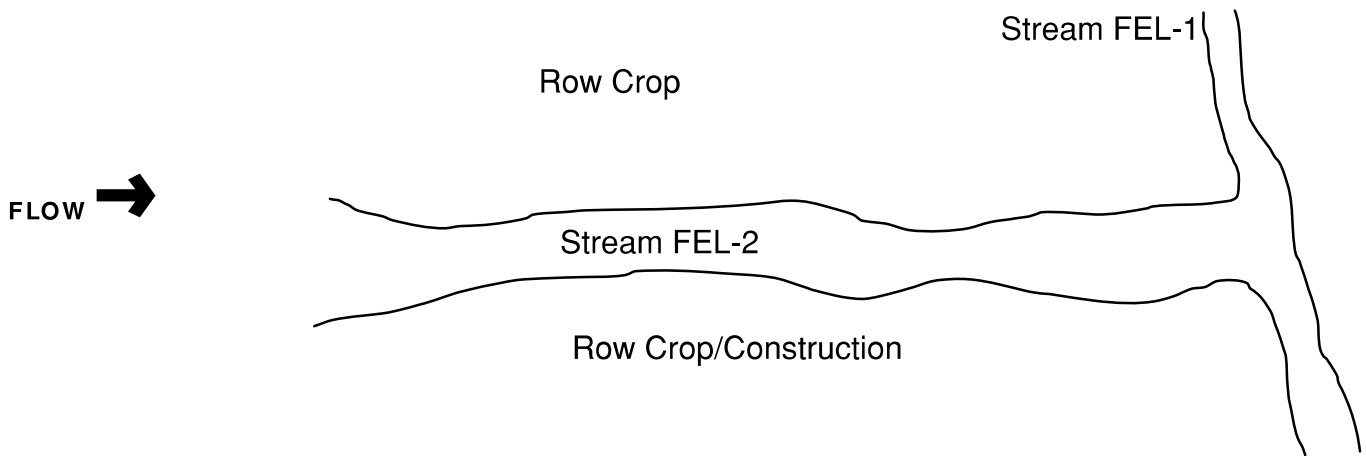
Additional comments/description of pollution impacts:

BIOTIC EVALUATION

Performed? (Y/N): (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)
Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Voucher? (Y/N)
Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
Comments Regarding Biology:

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

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



Appendix D.

Representative Photographs

PHOTOGRAPH 1



Stream FEL-1 (intermittent), facing upstream on May 29, 2020.

PHOTOGRAPH 2



Stream FEL-1 (intermittent), facing downstream on May 29, 2020.

PHOTOGRAPH 3



Stream FEL-1 (intermittent), substrate on May 29, 2020.

PHOTOGRAPH 4



Stream FEL-2 (ephemeral), facing upstream on May 29, 2020.

PHOTOGRAPH 5



Stream FEL-2 (ephemeral), facing downstream on May 29, 2020.

PHOTOGRAPH 6



Stream FEL-2 (ephemeral), substrate on May 29, 2020.

PHOTOGRAPH 7



Wetland BS-01 (PEM), facing north on September 13, 2019.

PHOTOGRAPH 8



Wetland BS-01 (PEM), facing south on September 13, 2019.

PHOTOGRAPH 9



Wetland BS-01 (PEM), facing east on September 13, 2019.

PHOTOGRAPH 10



Wetland BS-01 (PEM), facing west on September 13, 2019.

PHOTOGRAPH 11



Representative view of Upland Data Point BS-01, facing south on September 13, 2019.

Appendix E.

Threatened and Endangered Species Agency Coordination Responses

Renner, Philip

From: Ohio, FW3 <ohio@fws.gov>
Sent: Friday, April 17, 2020 4:03 PM
To: Renner, Philip
Subject: AEP Fostoria-East Lima 138 kV Transmission Line Project

Follow Up Flag: Follow up
Flag Status: Flagged



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# 03E15000-2020-TA-1237

Dear Mr. Renner,

We have received your recent correspondence requesting information about the subject proposal. There are no Federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area.

FEDERALLY LISTED, PROPOSED, AND CANDIDATE SPECIES COMMENTS: Due to the project, type, size, and location, we do not anticipate adverse effects to 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 should be initiated to assess any potential impacts.

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Patrice Ashfield".

Patrice Ashfield
Ohio Field Office Supervisor



Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR

MARY MERTZ, DIRECTOR

Office of Real Estate
John Kessler, Chief
2045 Morse Road – Bldg. E-2
Columbus, OH 43229
Phone: (614) 265-6621
Fax: (614) 267-4764

June 11, 2020

Philip Renner
WSP USA
312 Elm Street, Suite 2500
Cincinnati, Ohio 45202

Re: 20-407; AEP Fostoria-East Lima 138 kV Transmission Line Project

Project: The proposed project involves the removal of 0.32 miles of existing transmission line and the construction of 0.54 miles of new transmission line tying into the proposed Boutwell Substation.

Location: The proposed project is located in Richland Townships, Allen 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 clubshell (*Pleurobema clava*), a state endangered and federally endangered mussel, the northern riffleshell (*Epioblasma torulosa rangiana*), a state endangered and federally endangered mussel, and the pondhorn (*Uniomerus tetralasmus*), 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 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, 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.

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.

Mike Pettegrew
Environmental Services Administrator (Acting)